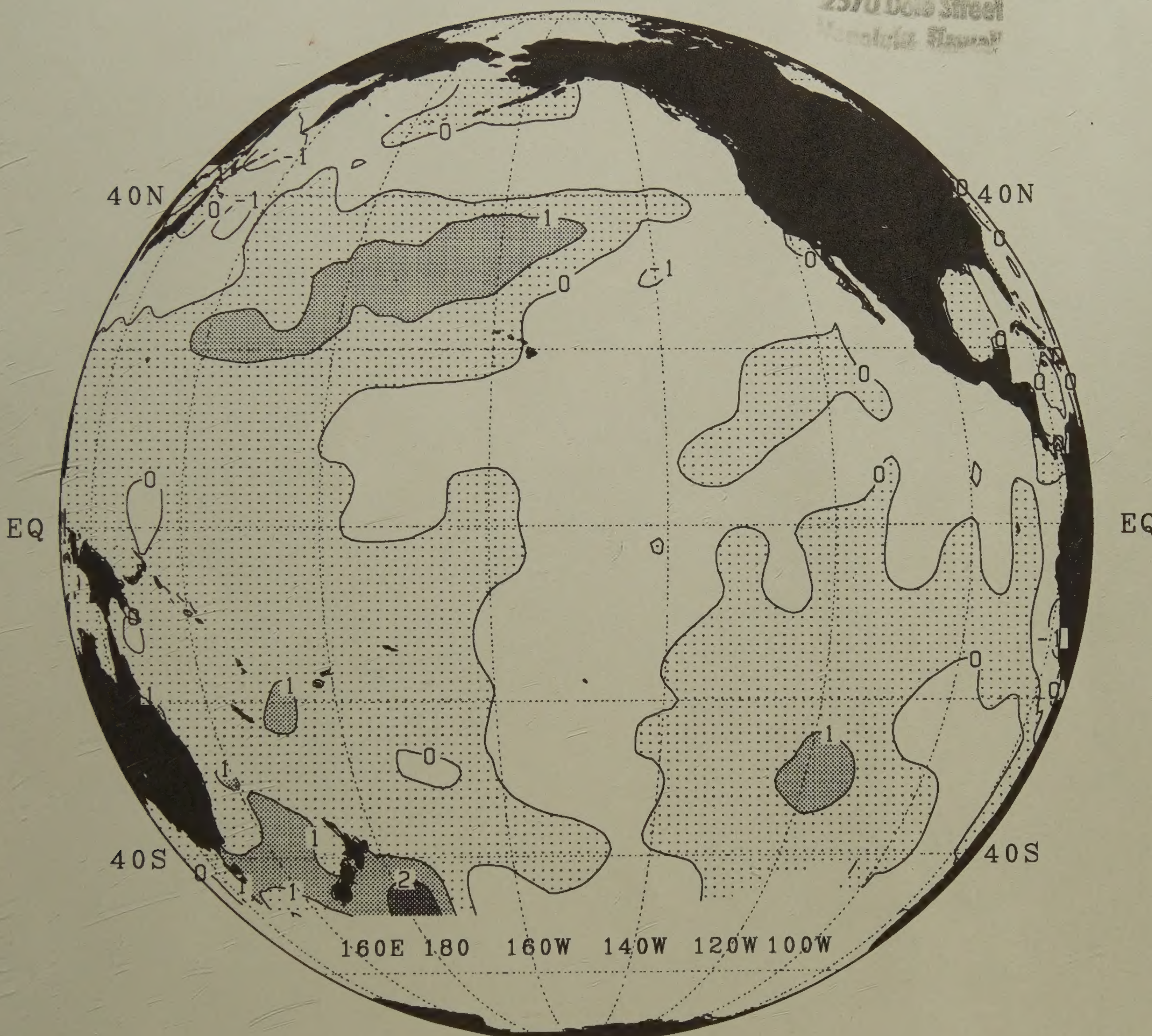
気象庁海洋月報

Monthly Ocean Report
May 2001 (No. 101)



Climate and Marine Department
Japan Meteorological Agency

気象庁 気候・海洋気象部

平成13年5月

気象庁海洋月報は、気象庁 気候・海洋気象部 海洋気象情報室で作成しています。
本月報に関する問い合わせは、

〒100-8122　東京都千代田区大手町１-３-４　気象庁 気候・海洋気象部 海洋気象情報室まで。
電　話 (03) 3212-8341 (内線 5128、5129)
ＦＡＸ (03) 3211-3047
電子メール ocean@hq.kishou.go.jp

Monthly Ocean Report is prepared by the Office of Marine Prediction, Climate and Marine Department, Japan Meteorological Agency.

Correspondence relating to this report may be directed to :

Yuji Kano
Head, Office of Marine Prediction
Climate and Marine Department, Japan Meteorological Agency
1-3-4 Ote-machi, Chiyoda-ku, Tokyo 100-8122 Japan
Facsimile: +81-3-3211-3047
e-mail : ocean@hq.kishou.go.jp

表紙は、2001年5月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for May 2001 in the Pacific Ocean.
Areas of positive anomalies are shaded.

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海況の特徴（２００１年５月）

日本近海の海況

海面水温は、三陸沖から関東の東方にかけての海域と日本海中部を除いて全般に負偏差となった。日本海北部、千島列島周辺、本州はるか東方及び四国の南方で平年より1℃以上、30°Nに沿った南西諸島周辺から160°Eまで平年より0.5℃以上低かった。一方、常磐沖では平年より1℃以上高かった（第４図）。

黒潮は、月を通して東海沖で離岸し、32°N、139°E付近まで南下した後、八丈島の西を北上、三宅島付近を通っていた。その後、房総半島沖から鹿島灘を北上し、常磐沖で北東に流れていた。（第９図）。

太平洋の海況

太平洋赤道域の海面水温は、ニューギニア島の北側で平年より0.5℃以上高く、ペルー・エクアドル沖で平年より0.5℃以上低いほかは、大きな偏差は見られなかった。

北太平洋の海面水温は、20°N、160°Eから40°N、150°Wにかけて平年より1℃以上高かった。一方、千島列島及びカムチャツカ半島の東方、45°Nに沿った日付変更線から145°Wにかけて、及びカナダの西岸沖では-0.5℃を超える負偏差が見られた（第１７図）。

Highlights May 2001

Seas adjacent to Japan

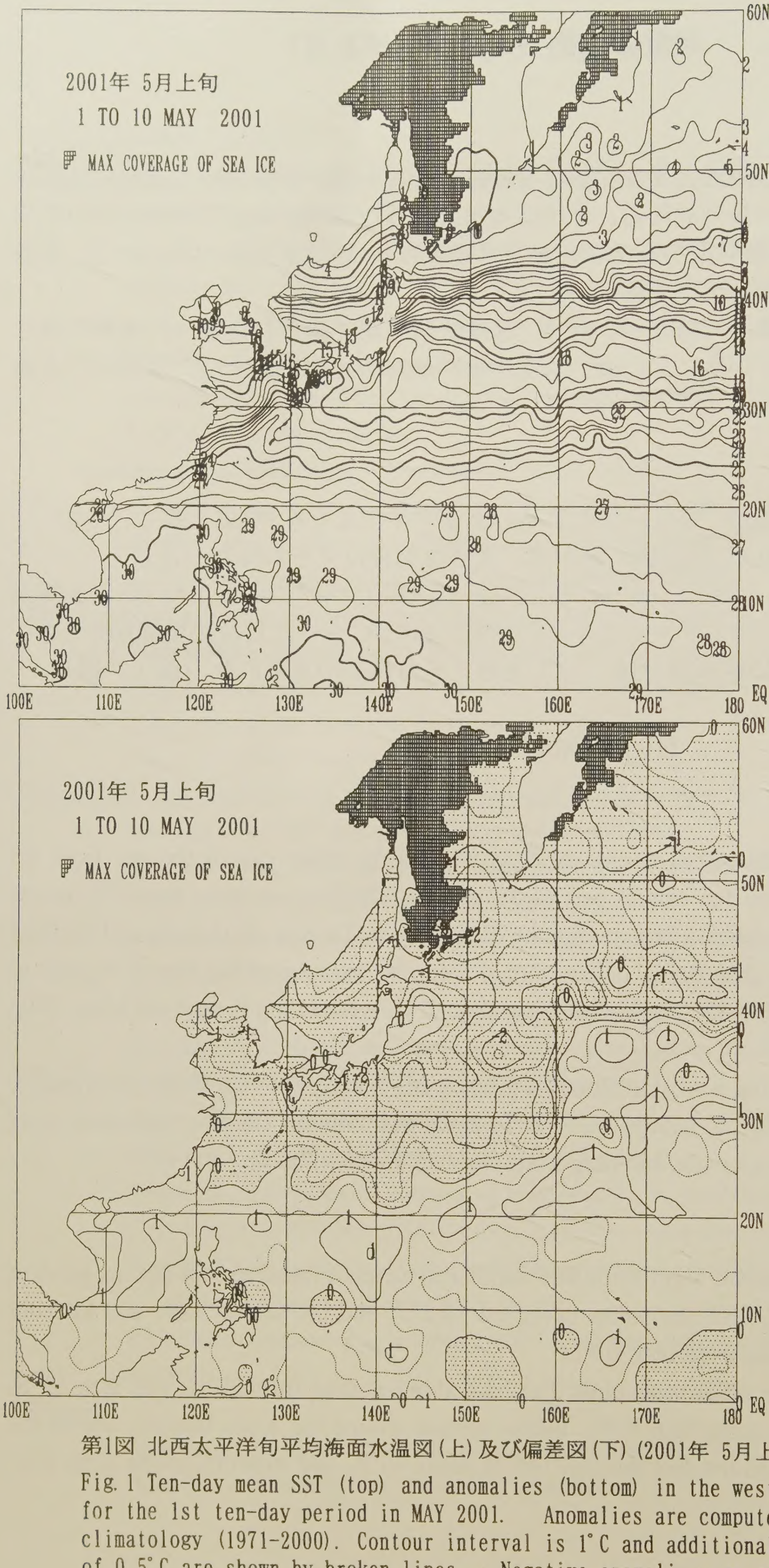
SSTs were generally below normal in Seas adjacent to Japan except the sea from off Sanriku to east of Kanto and the central part of Japan Sea. SSTs were more than 1℃ below normal in the northern part of Japan Sea, around the Kuril Islands, far east off Honshu and south of Shikoku. SSTs were more than 0.5℃ below normal from the sea around the Nansei Islands to 160°E along 30°N. Positive SST anomalies exceeding +1℃ were found in seas off Joban (Fig. 4).

During the month, the Kuroshio flowed off Tokai SE-ward to 32°N, 139°E and turned to the north, then it flowed west of Hachijo Island and passed near Miyake Island. It flowed along the Boso Peninsula to Kashima-nada, and turned NE-ward off Joban. (Fig. 9).

Pacific Ocean

In the equatorial Pacific, significant SST anomalies werenot found except the sea north of New Guinea where positive SST anomalies exceeded +0.5℃, and the sea off Peru and Ecuador where negative SST anomalies exceeded -0.5℃.

In the North Pacific, SSTs were more than 1℃ above normal from 20°N, 160°E to 40°N, 150°W. While SSTs were more than 0.5℃ below normal around the Kuril Islands, east of the Kamchatka Peninsula between the date line and 145°W along 45°N, and west of Canada. (Fig. 17).



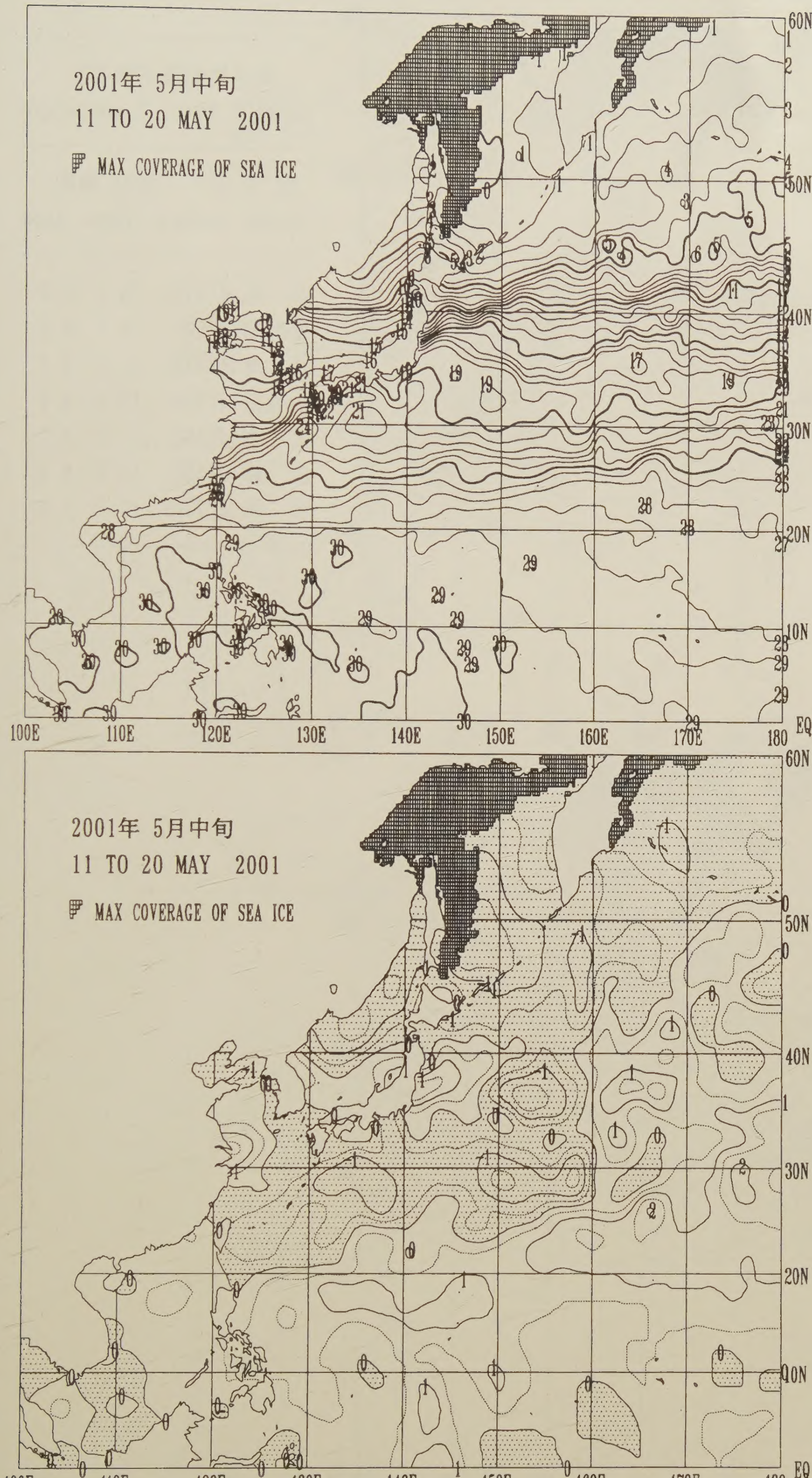
旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	25.4	-0.1
御前崎(47655)	16.8	-0.6
八丈島(47678)	20.9	1.0
小名浜(47598)	14.3	1.9
宮　古(47585)	8.7	0.1
江　差(47428)	11.1	0.9
浜　田(47755)	16.4	-0.1

第1図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2001年 5月上旬)

Fig.1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in MAY 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies



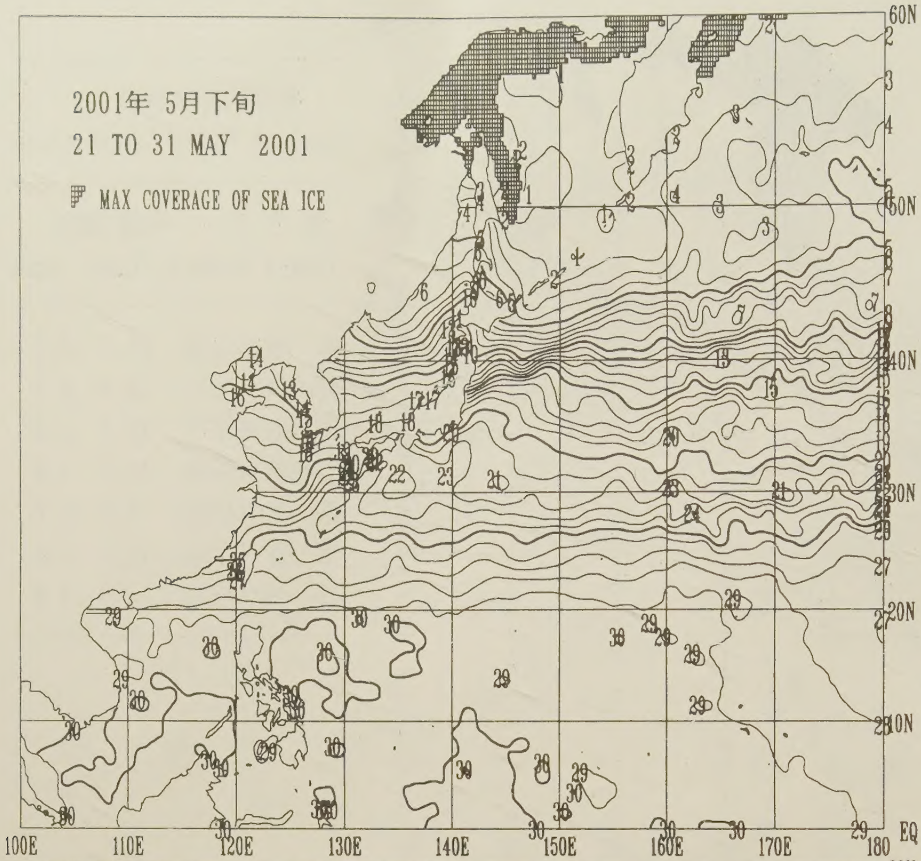
旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	25.5	-0.5
御前崎(47655)	18.6	0.1
八丈島(47678)	21.1	0.5
小名浜(47598)	15.8	2.6
宮　古(47585)	8.9	-0.7
江　差(47428)	12.3	1.2
浜　田(47755)	18.4	0.9

第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2001年 5月中旬)

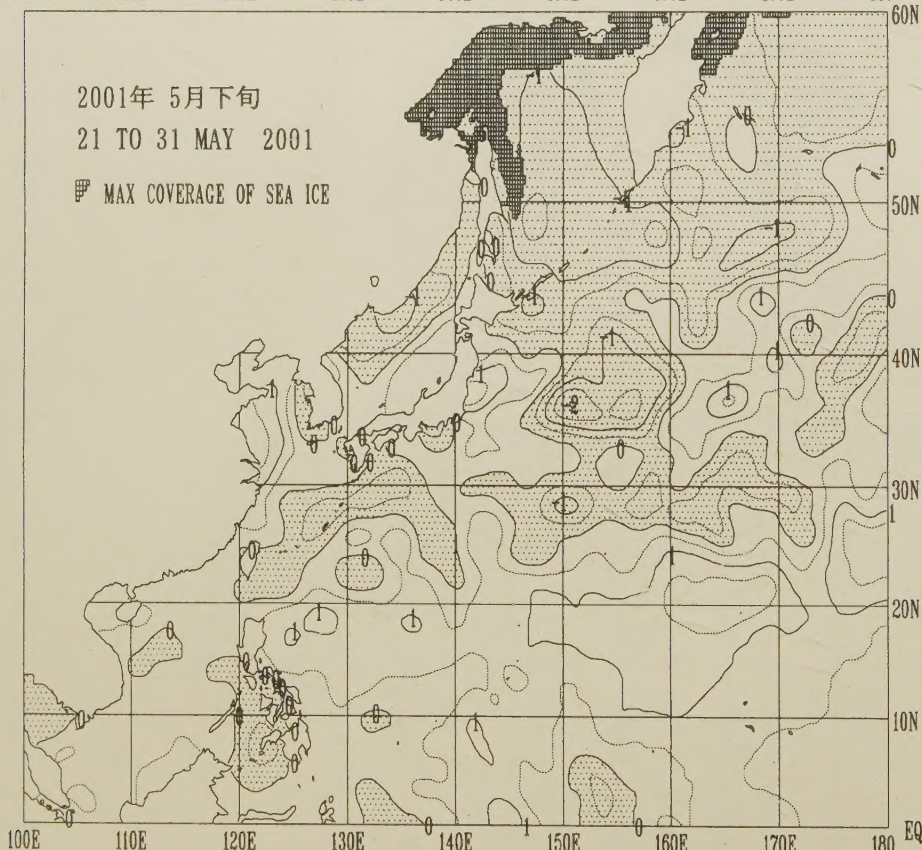
Fig. 2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in MAY 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies



旬平均沿岸水温(℃)
Coastal Water Temperature

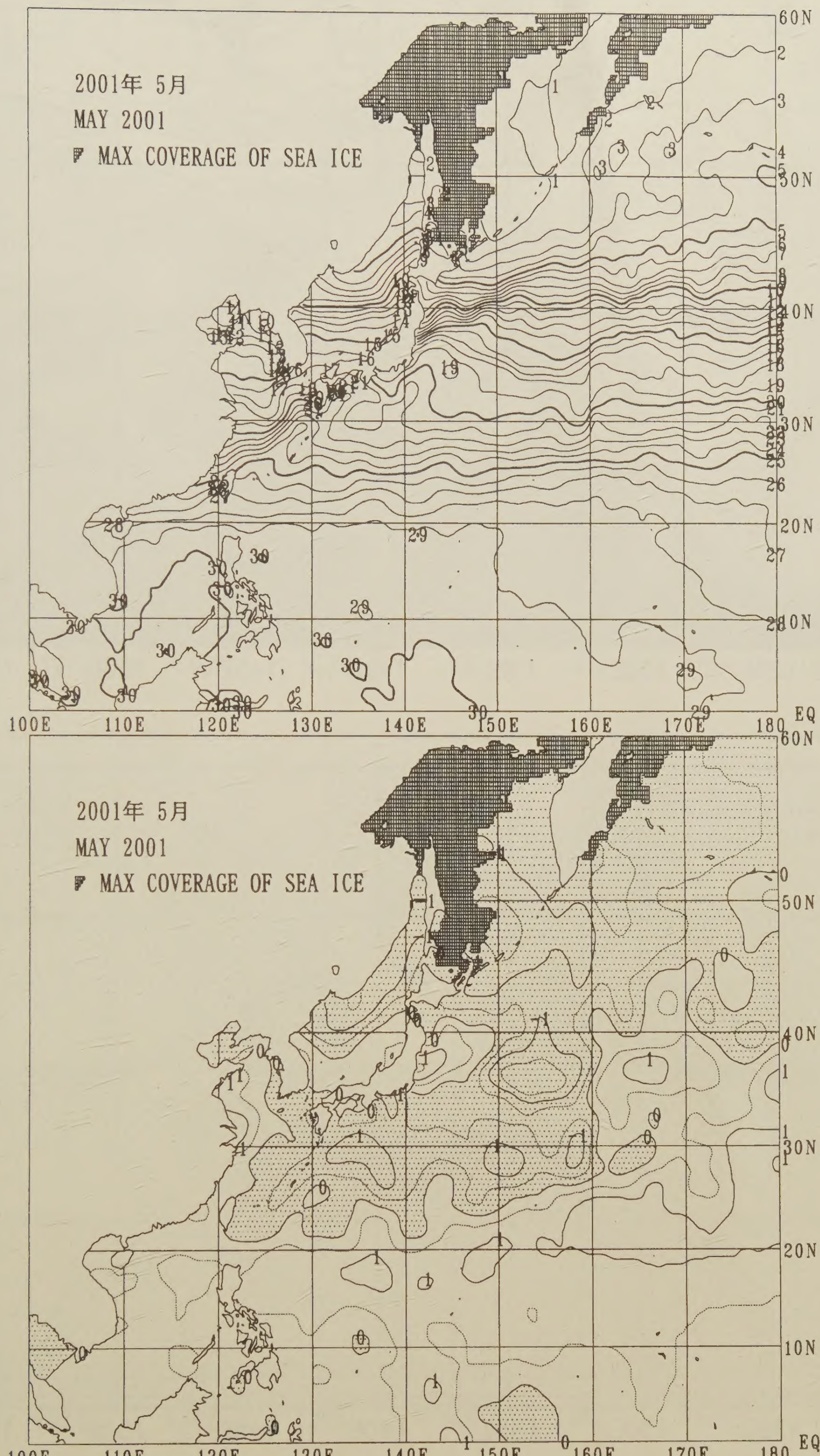
地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	26. 1	-0. 3
御前崎(47655)	19. 2	-0. 3
八丈島(47678)	21. 2	0. 1
小名浜(47598)	17. 3	3. 6
宮　古(47585)	11. 3	0. 7
江　差(47428)	13. 4	0. 9
浜　田(47755)	19. 7	1. 0



第3図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2001年 5月下旬)

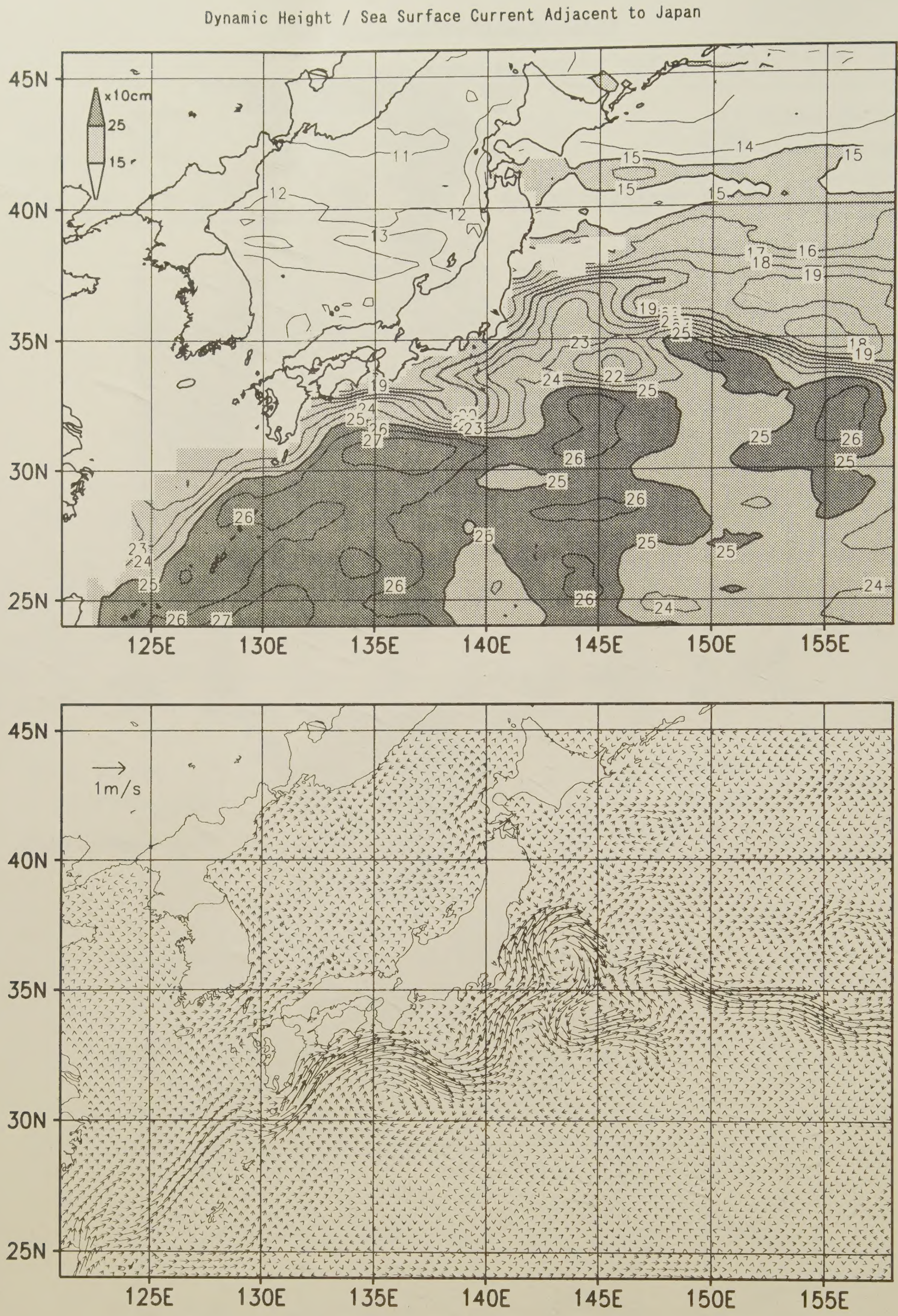
Fig. 3 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 3rd ten-day period in MAY 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Monthly Mean SST & Anomalies



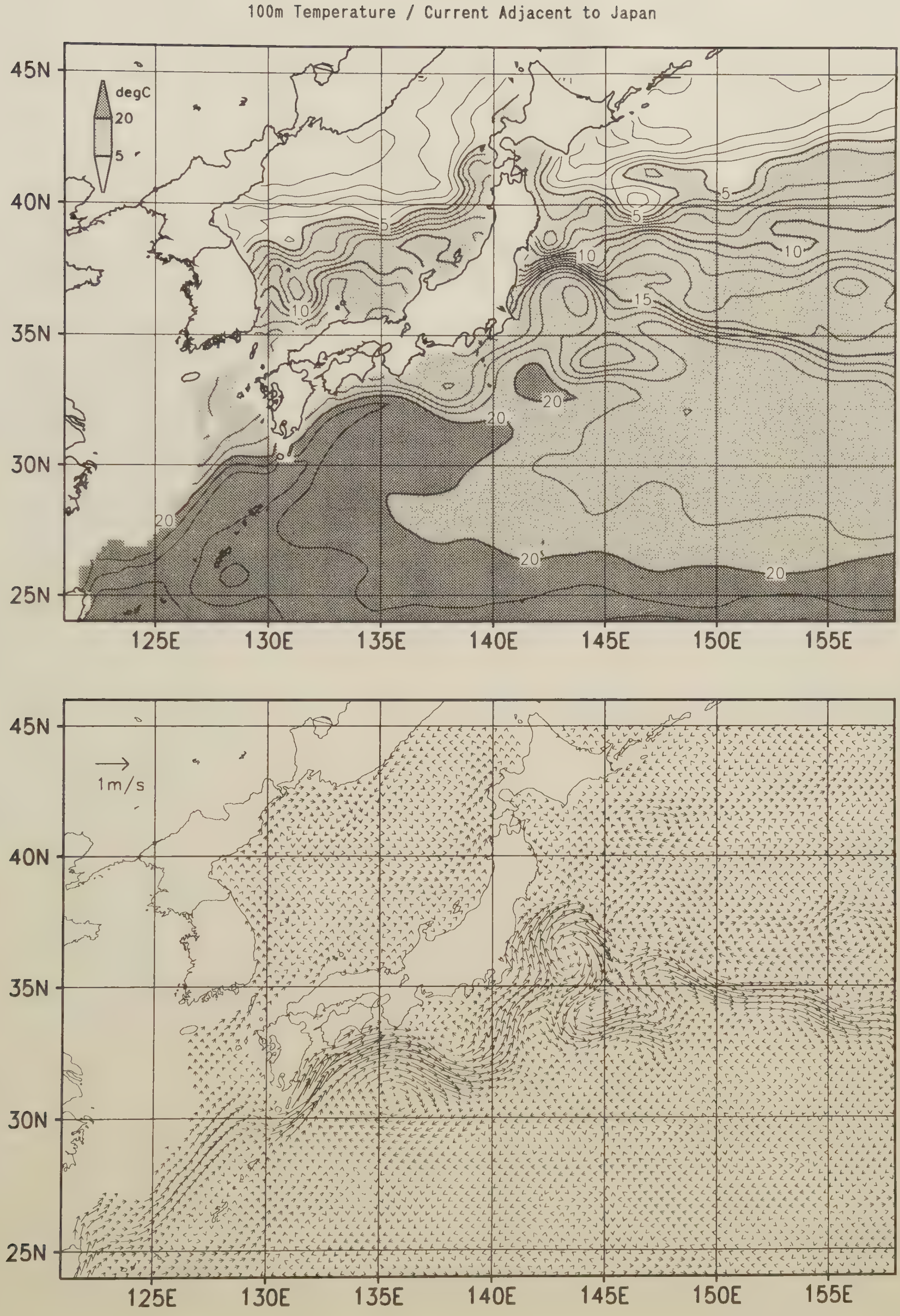
第4図 北西太平洋月平均海面水温図(上)及び偏差図(下) (2001年 5月)

Fig. 4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for MAY 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



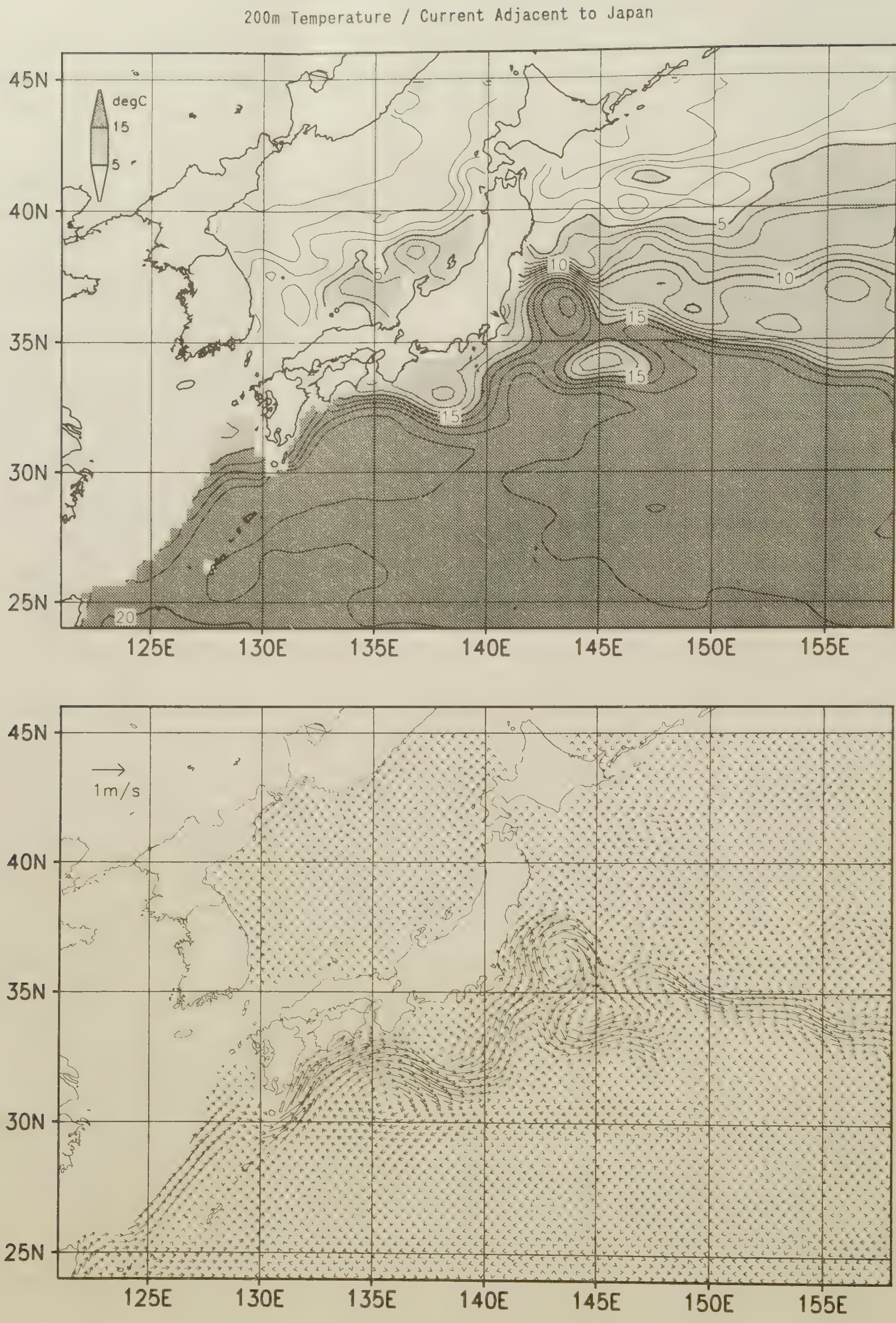
第 5 図　日本近海月平均海面高度分布図 (上) と海面海流図 (下) （2001 年 5 月）
（海洋総合解析システムによる）

Fig. 5　Monthly mean sea surface height (top) and current (bottom) in seas adjacent to Japan for May 2001. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



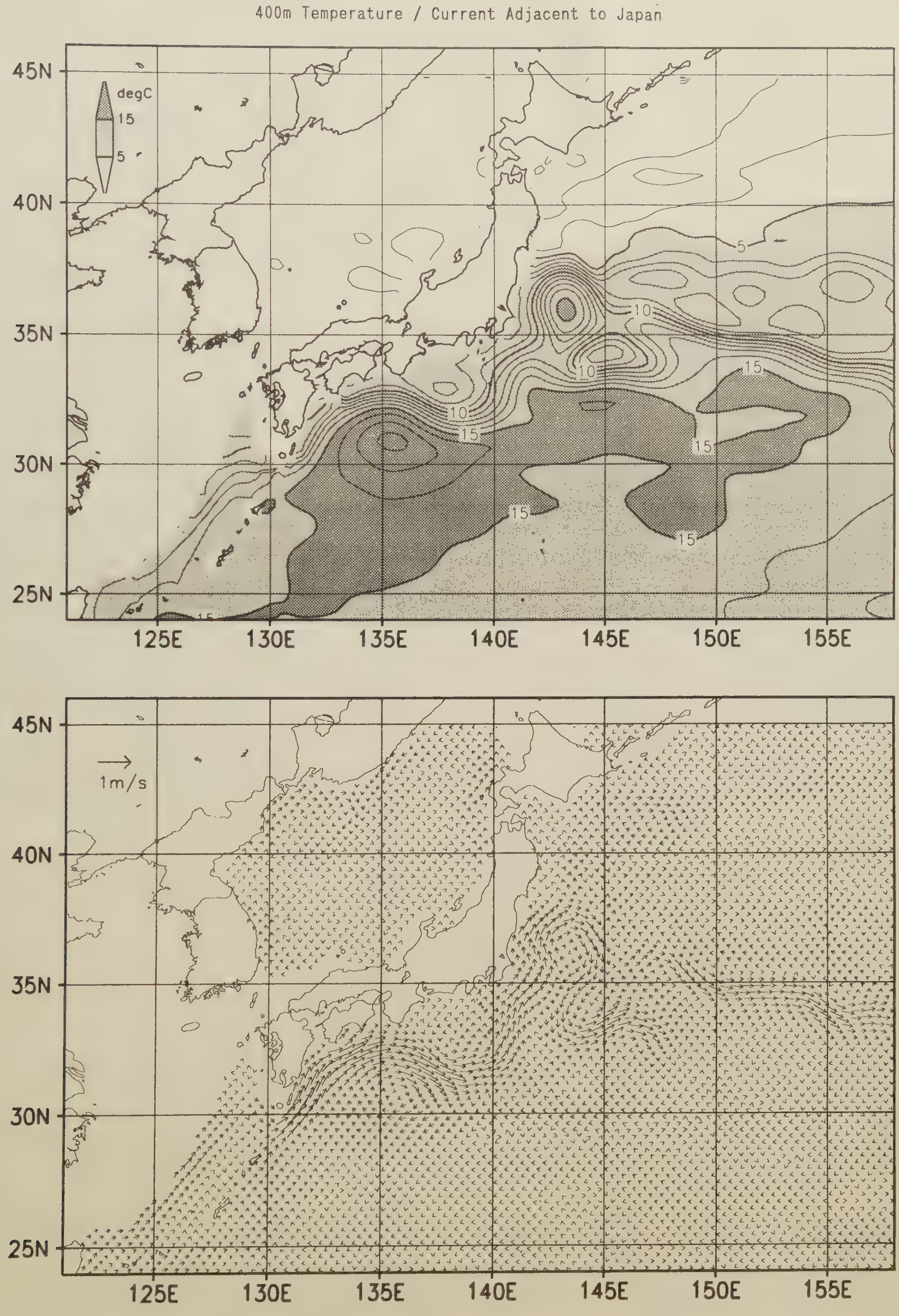
第 6 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 100 m）（2001 年 5 月）（海洋総合解析システムによる）

Fig. 6　Monthly mean subsurface (100 m) temperature (top) and current (bottom) in seas adjacent to Japan for May 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第７図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 200 m）（2001 年 5 月）
（海洋総合解析システムによる）

Fig. 7　Monthly mean subsurface (200 m) temperature (top) and current (bottom) in seas adjacent to Japan for May 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第 8 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 400 m）（2001 年 5 月）
（海洋総合解析システムによる）

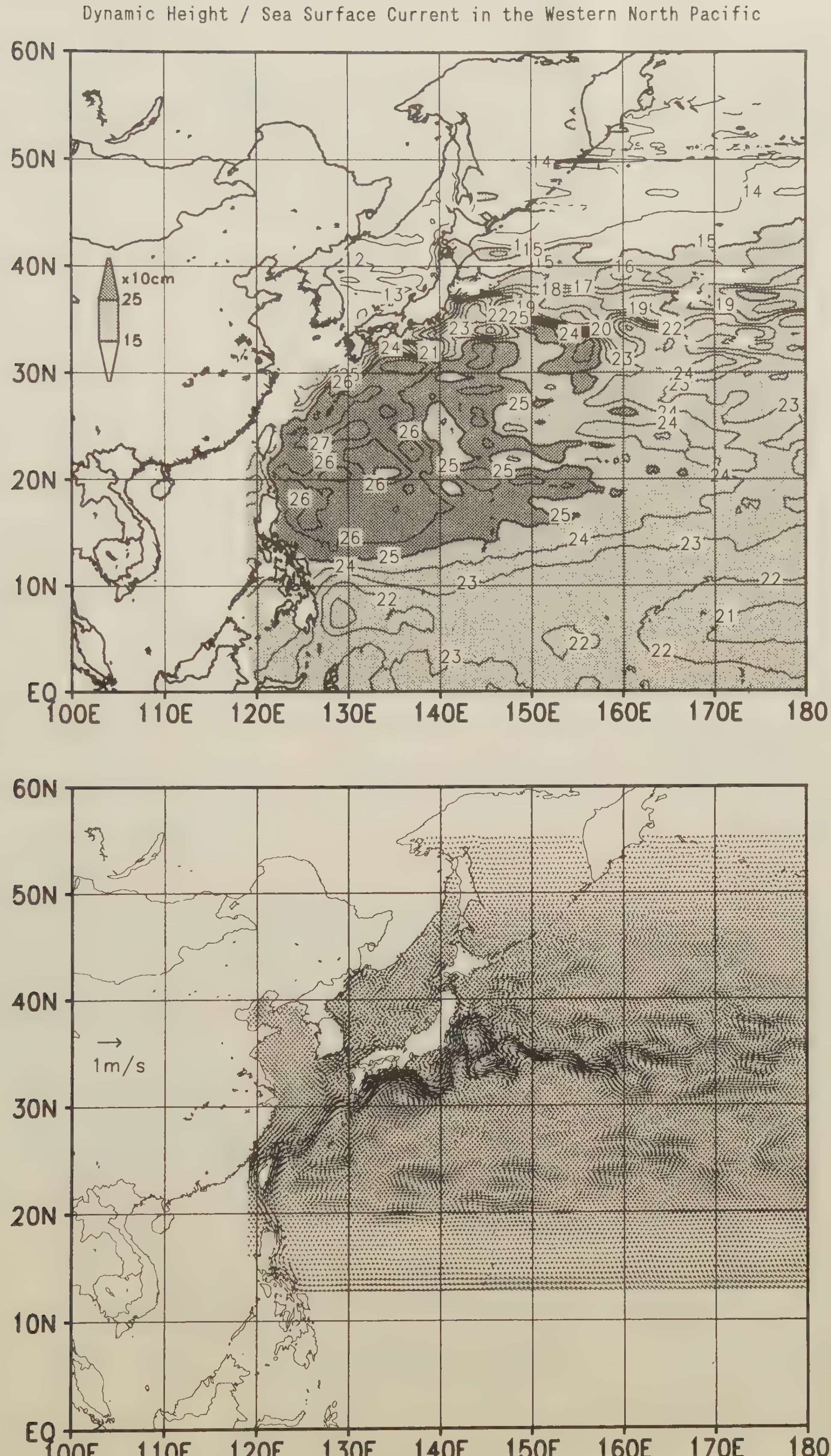
Fig. 8　Monthly mean subsurface (400 m) temperature (top) and current (bottom) in seas adjacent to Japan for May 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)

Location of the Kuroshio axis



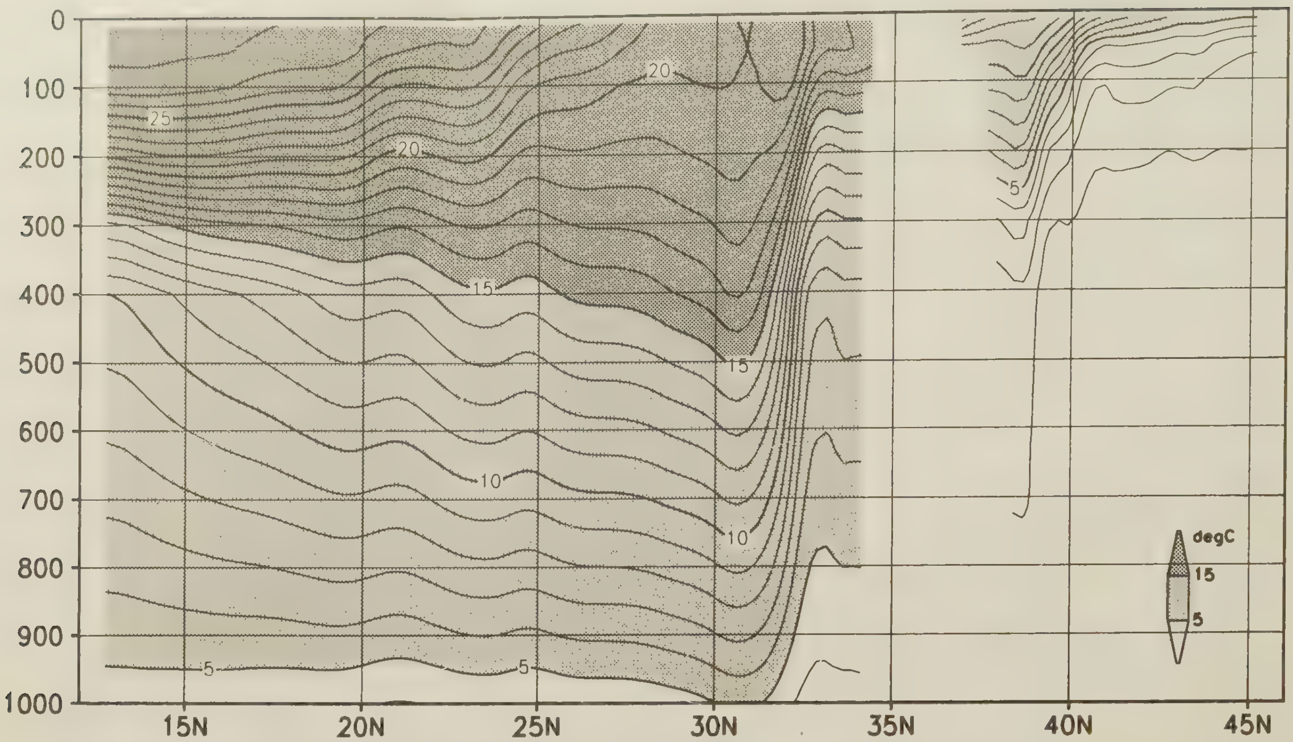
第9図 旬別黒潮流軸図

Fig. 9 Location of the Kuroshio axis



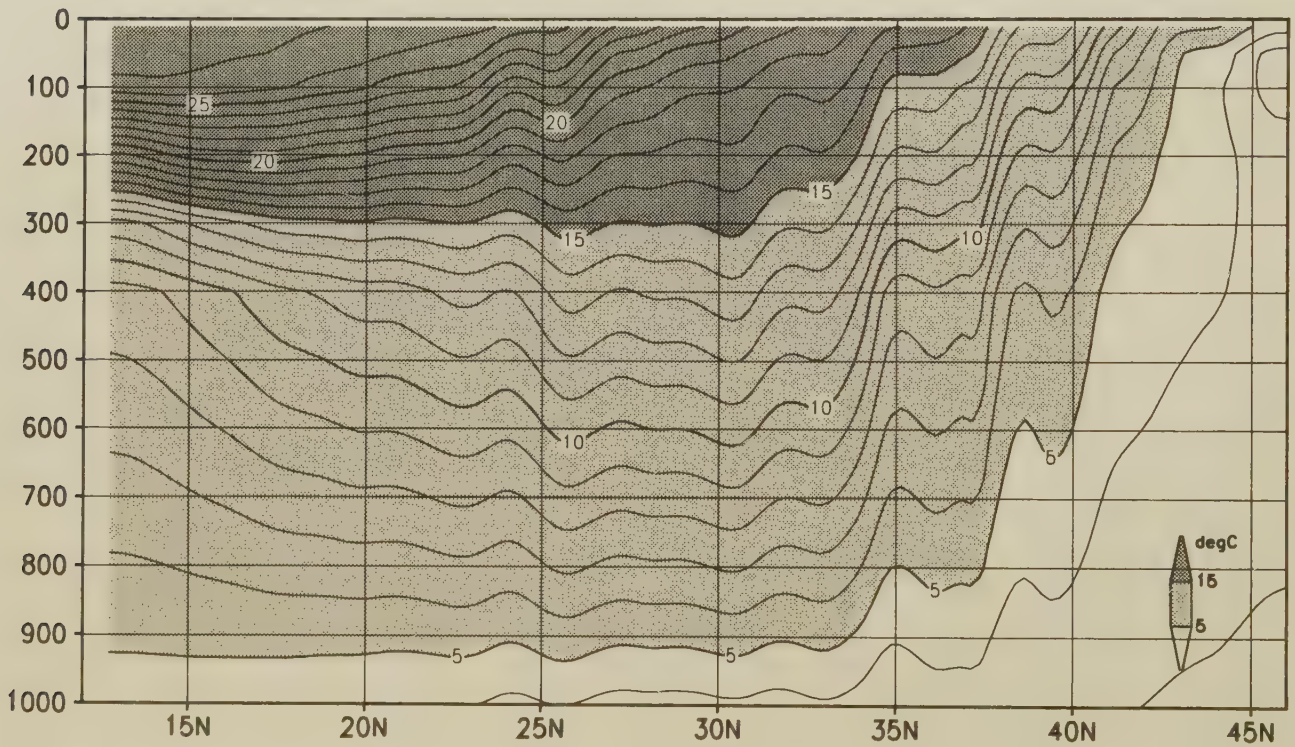
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(海洋総合解析システムによる)

Fig. 10　Monthly mean sea surface height (top) and current (bottom) in the western North Pacific for May 2001. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



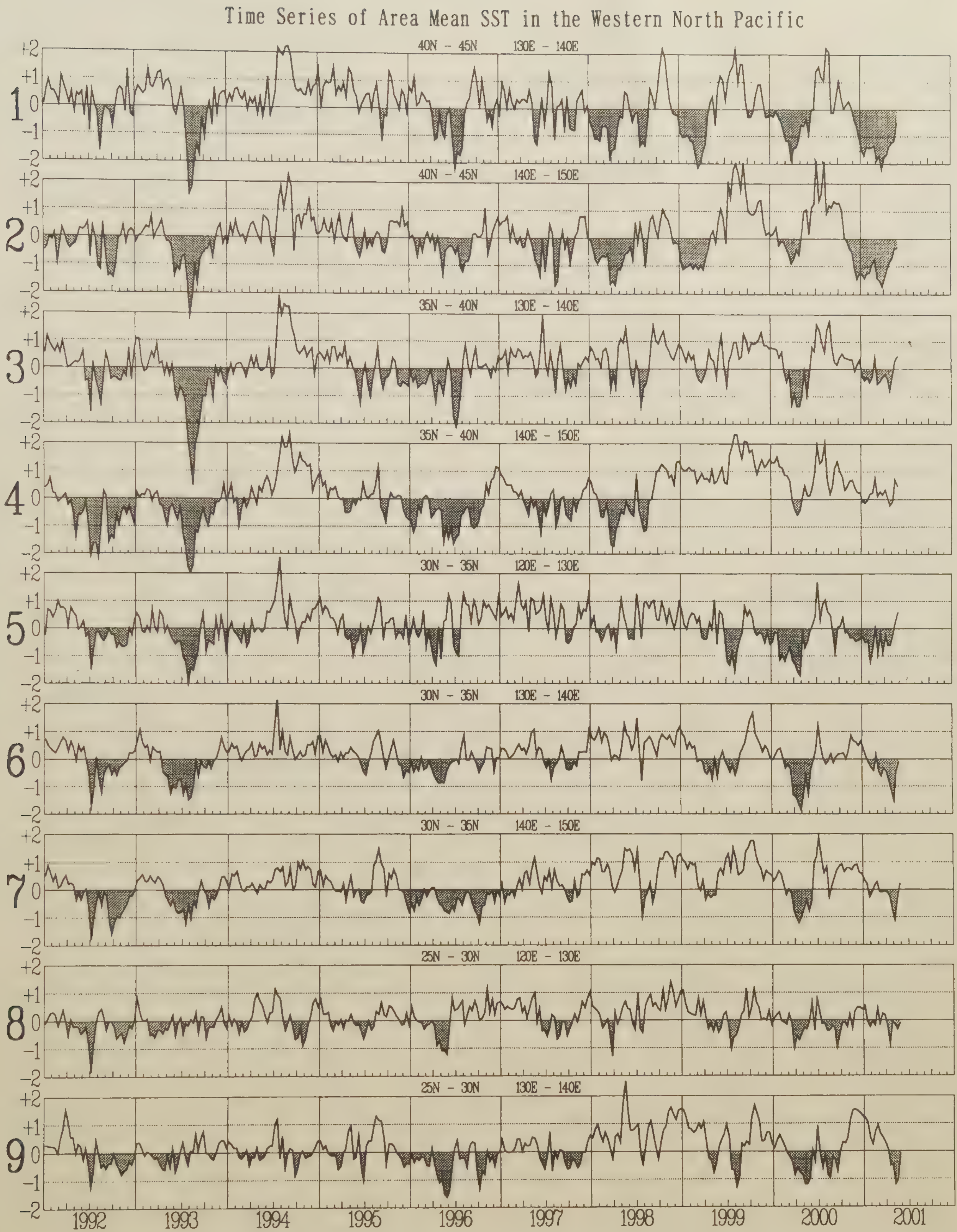
第11図　東経137°線に沿う月平均表層水温の鉛直断面図（2001年5月）
（海洋総合解析システムによる）

Fig. 11　Vertical cross section of monthly mean temperature along 137˚E for May 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



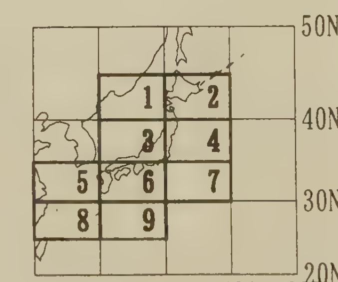
第12図　東経165°線に沿う月平均表層水温の鉛直断面図（2001年5月）
（海洋総合解析システムによる）

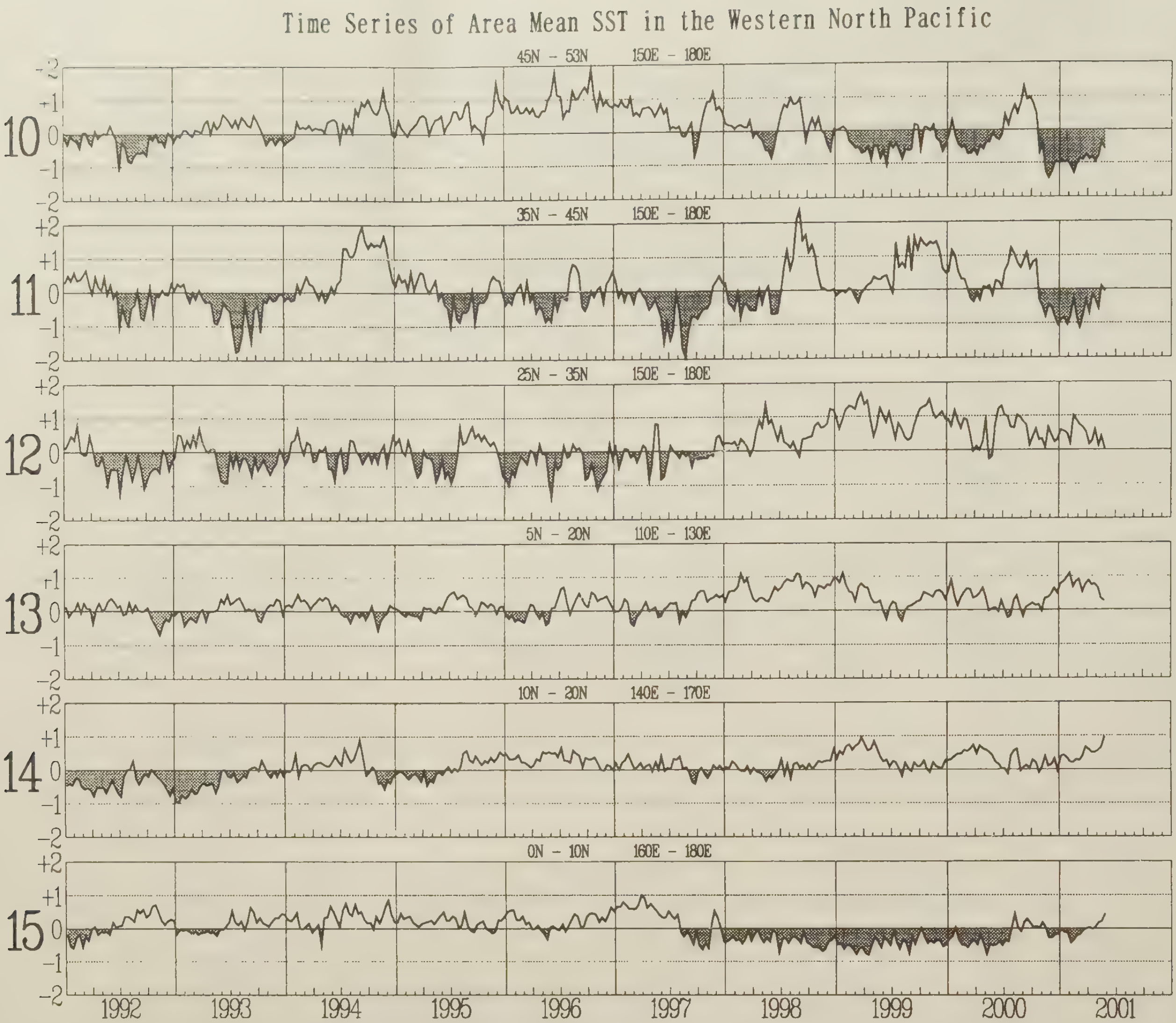
Fig. 12　Vertical cross section of monthly mean temperature along 165˚E for May 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第13図　海域別旬平均海面水温平年偏差時系列図

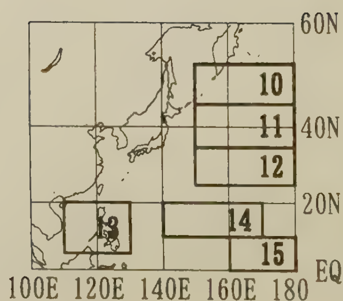
Fig. 13 Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

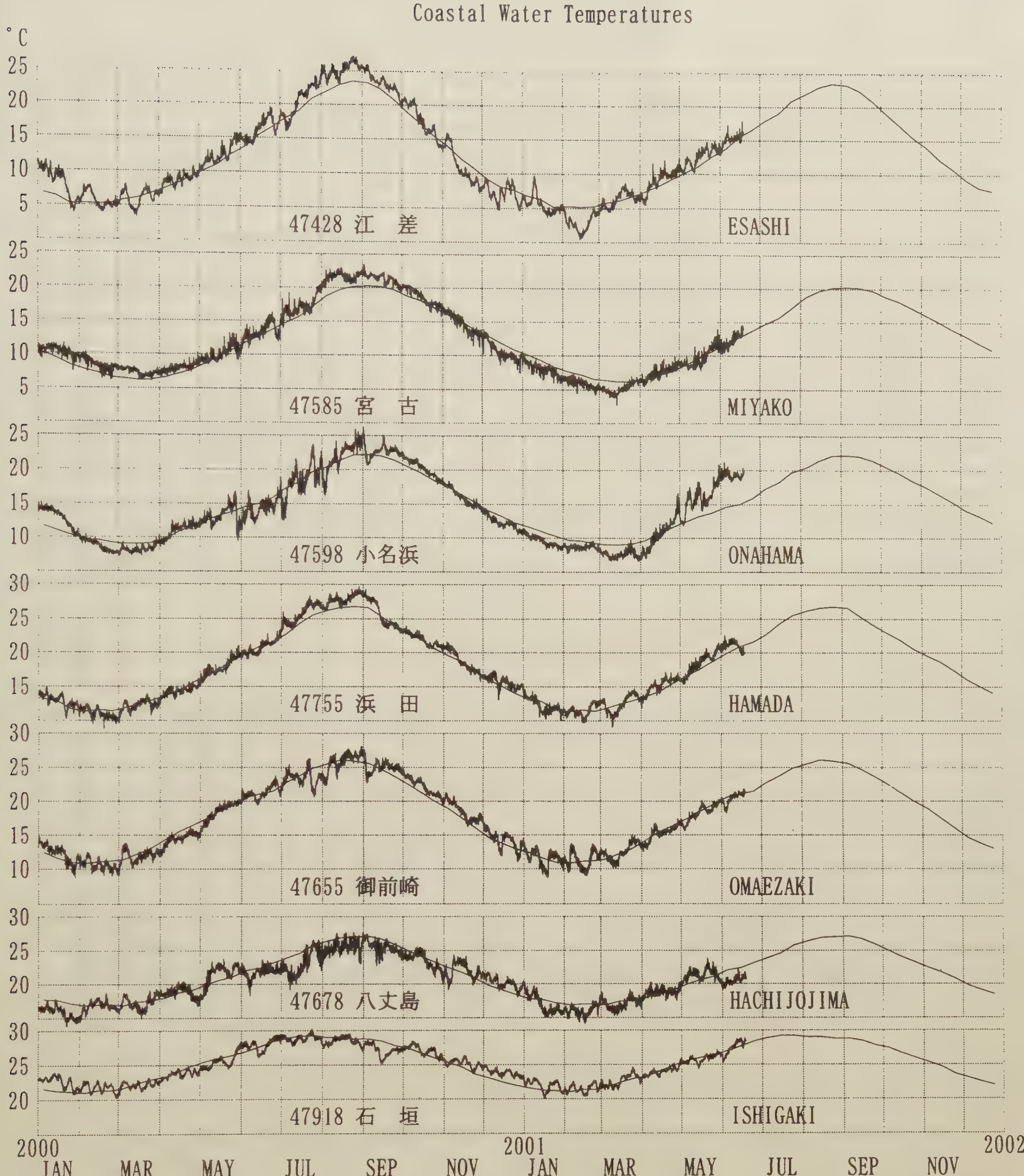


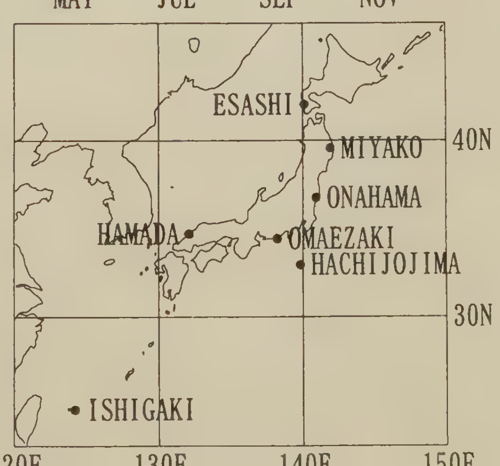


第13図　海域別旬平均海面水温平年偏差時系列図（つづき）

Fig. 13 (continue) Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

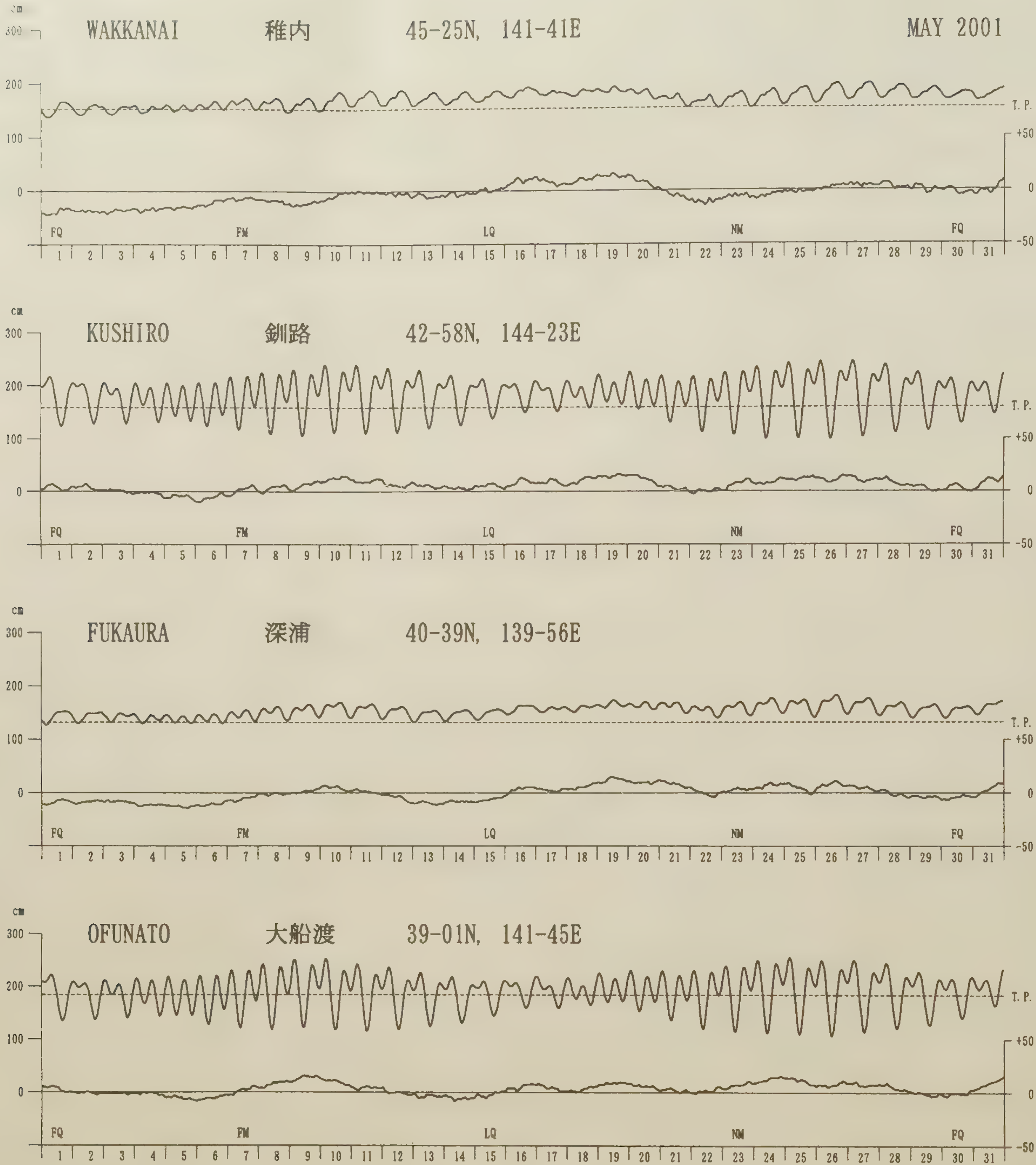






第14図 沿岸水温時系列図

Fig. 14 Time series of hourly coastal water temperatures (°C) measured at 7 coastal stations of the JMA shown in the right panel.
Thin lines show ten-day mean climatology.



第15図 沿岸潮位時系列図（2001年 5月）

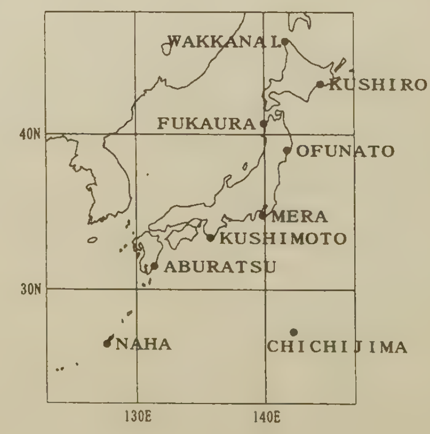
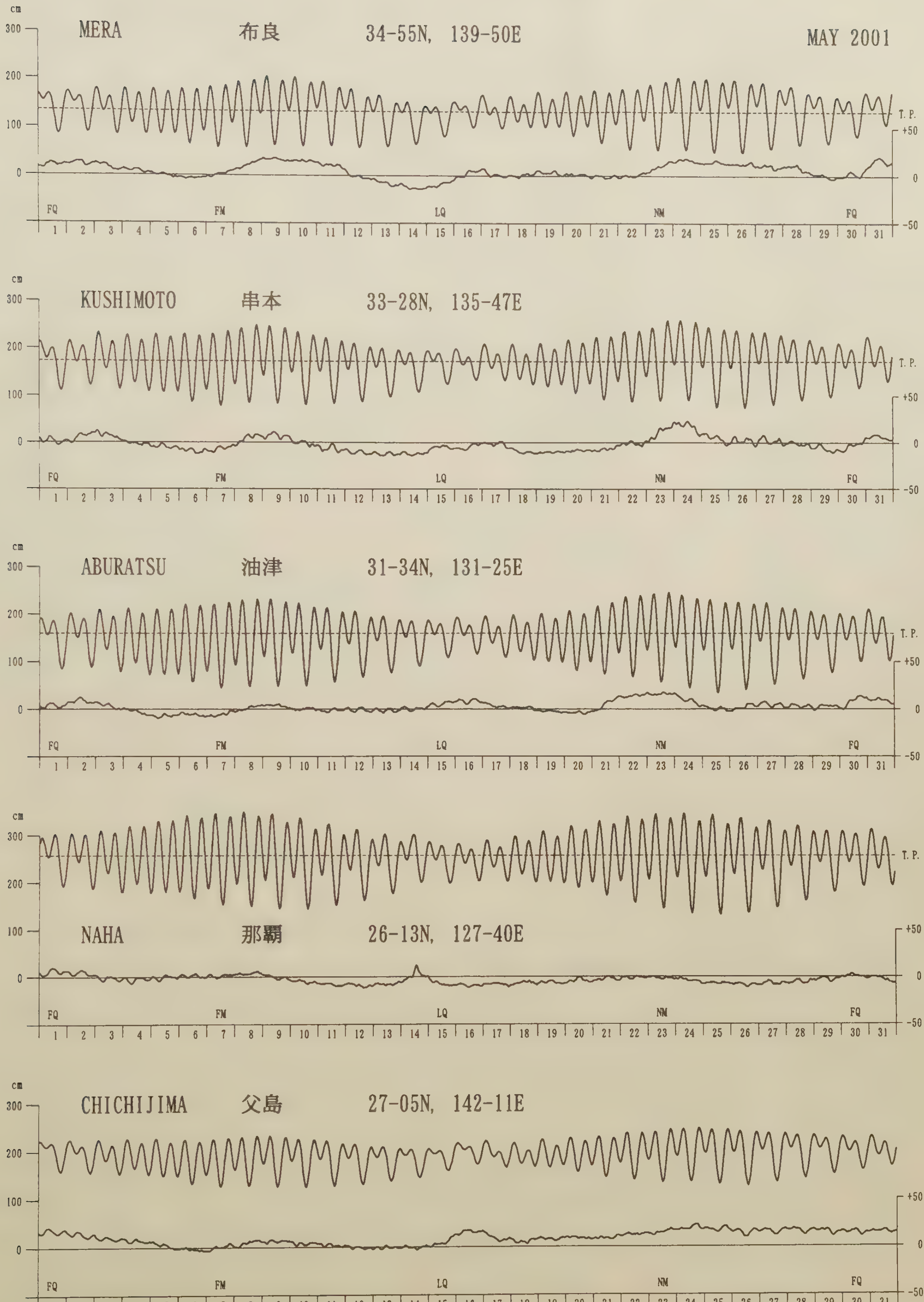


Fig. 14 Time series of hourly sea level observation (upper line) and its anomalies (lower line) at 9 stations of the JMA in the right panel.
Short term variations are removed from raw data.

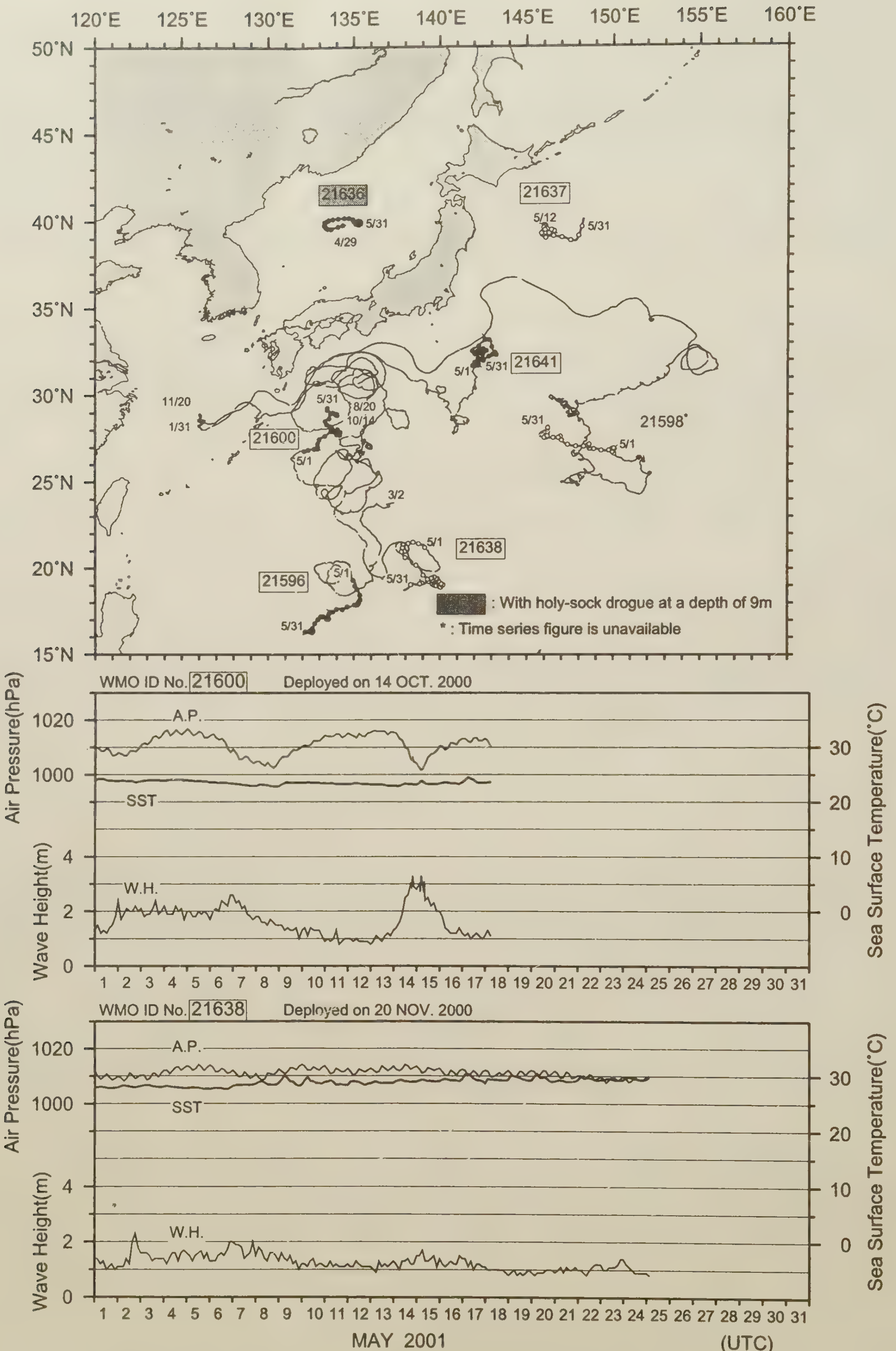
NM: new moon, FQ: first quarter
FM: full moon, LQ: last quarter
T. P. : Mean sea level of Tokyo Bay (Tokyo Peil)

Time series of Sea Level



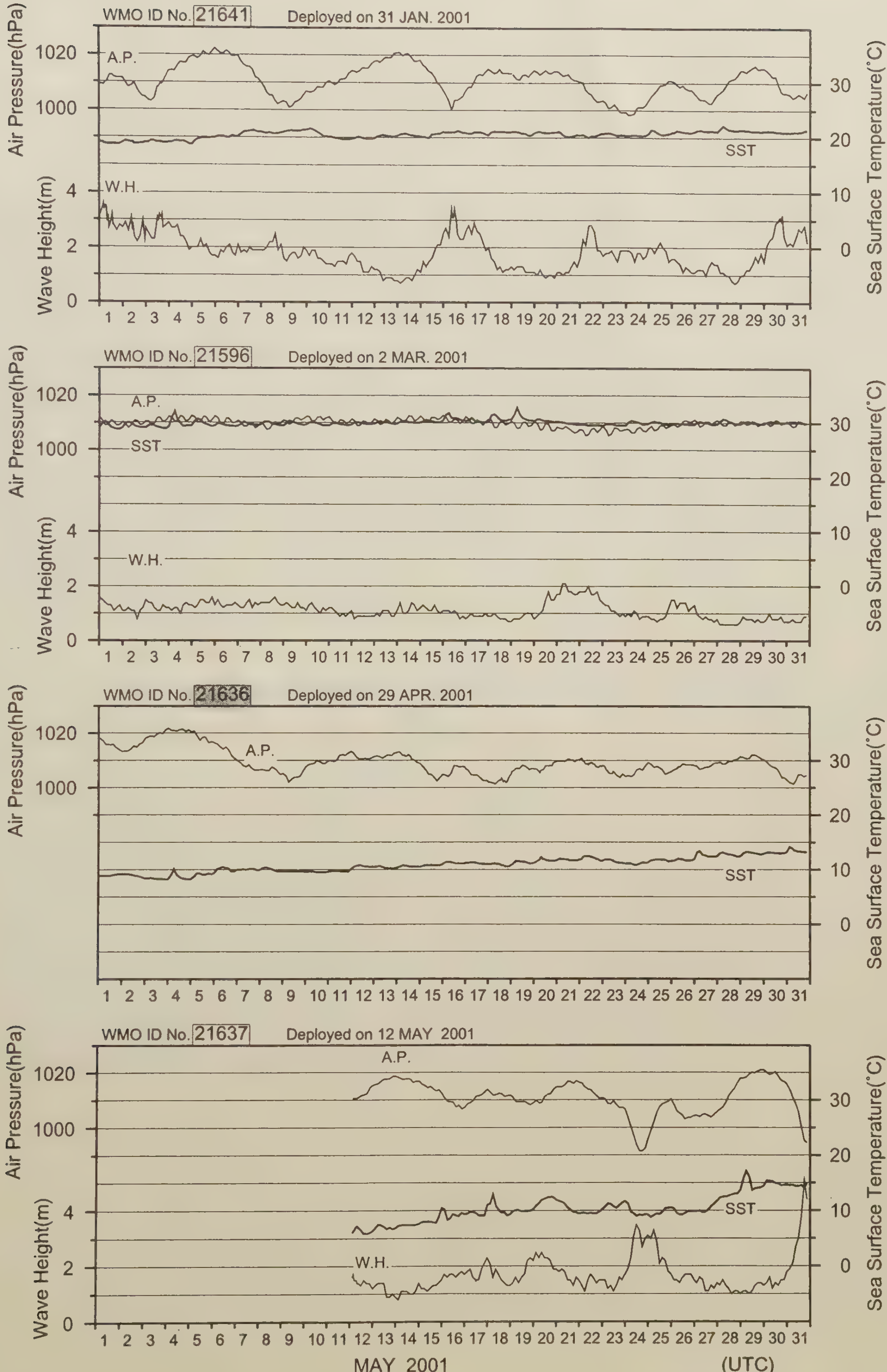
第15図 つづき

Fig. 15 continue



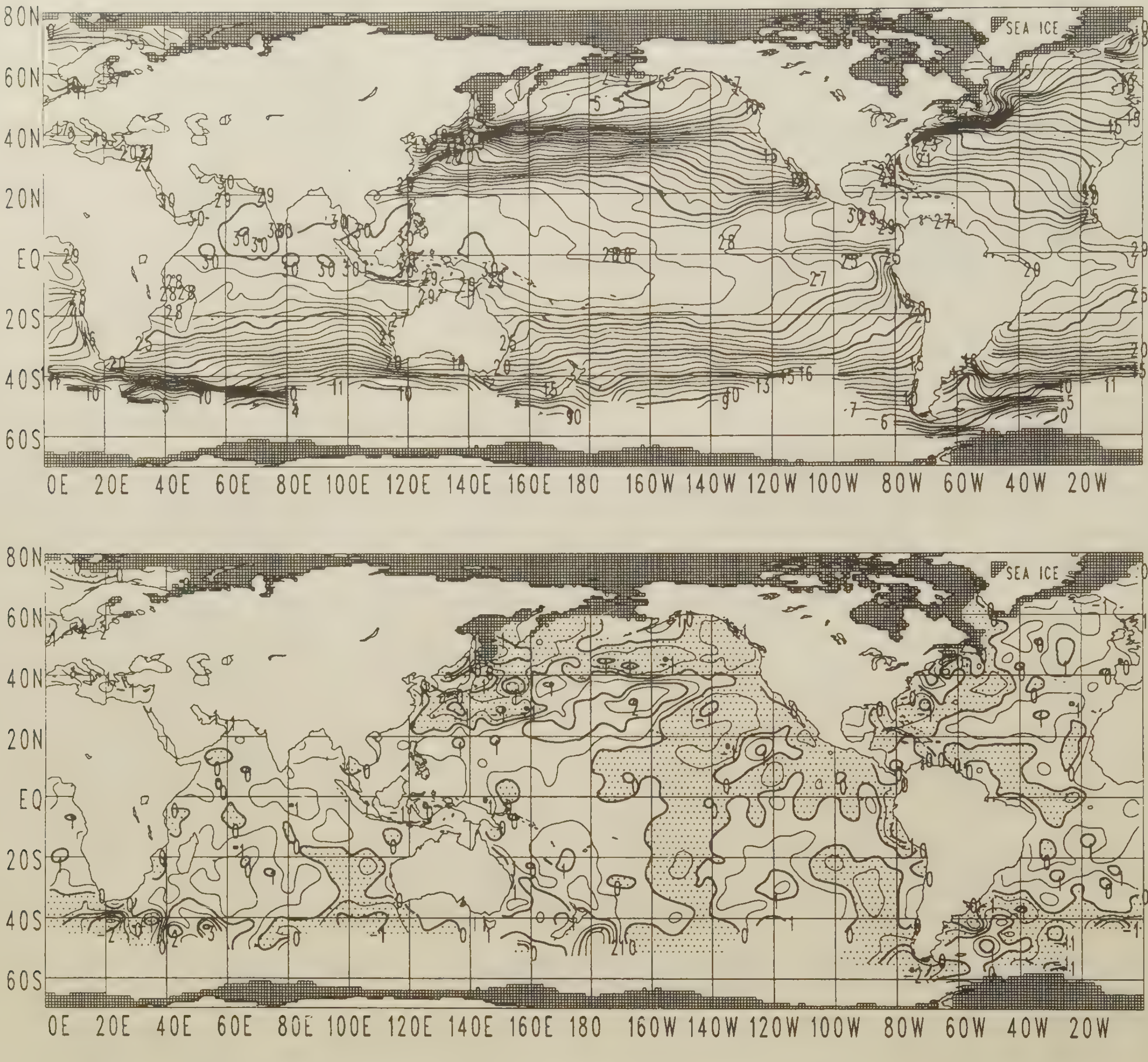
第16図　漂流型海洋気象ブイロボットの軌跡と観測要素の時系列図

Fig.16　Time series of JMA drifting buoy observation.
The upper panel shows paths of the buoys. Circles denote the position at 00h UTC everyday.
The lower panel shows time series of observation data.



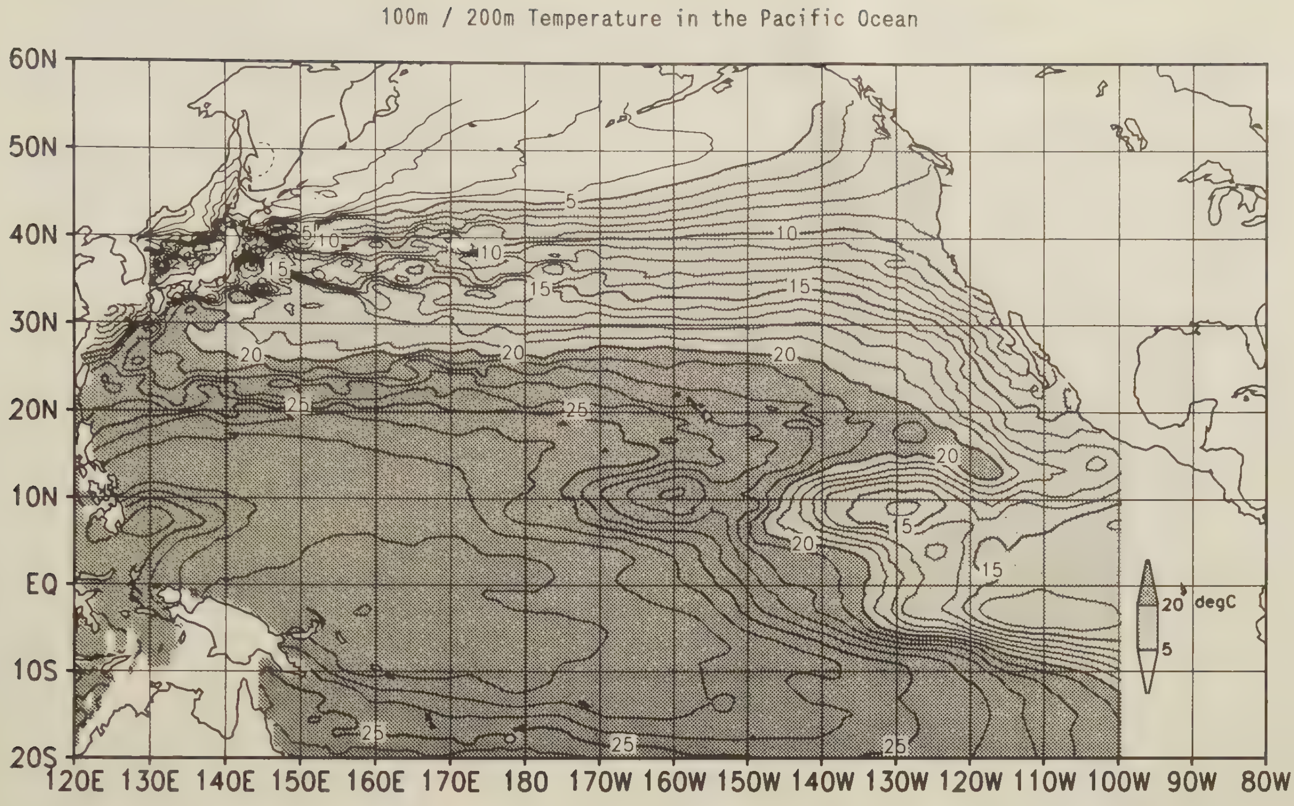
第16図 つづき
Fig.16 continue

SST & Anomalies in the Global Ocean



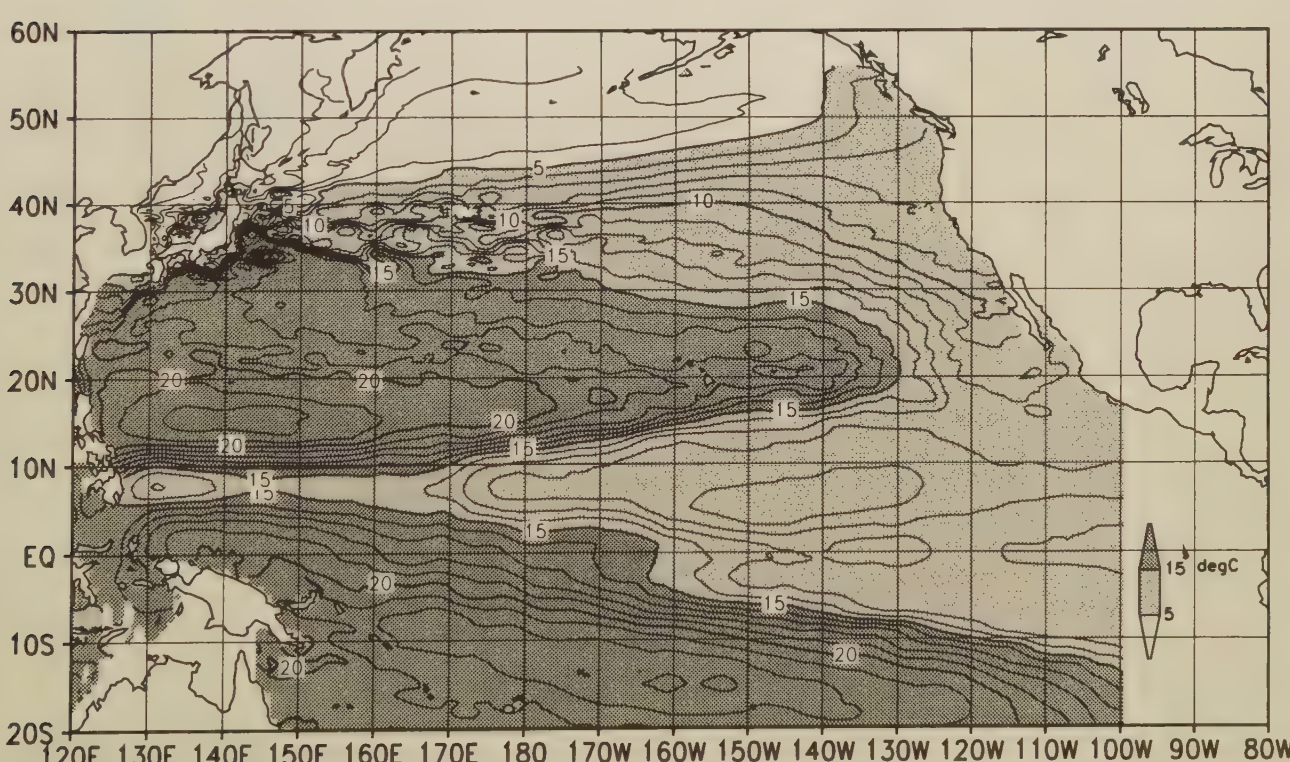
第17図　全球月平均海面水温図（上）及び偏差図（下）（2001年 5月）

Fig. 17 Monthly mean SST over the global ocean (top) and anomalies (bottom) for MAY 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).



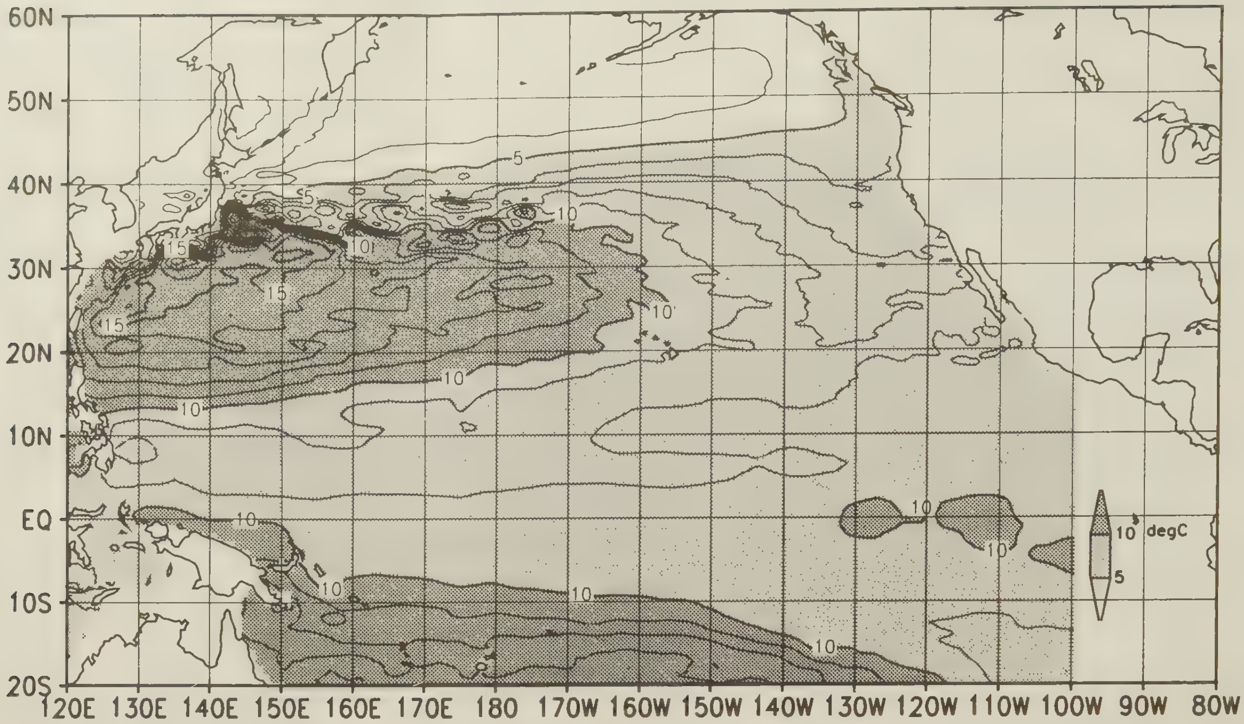
第 18 図　太平洋月平均表層水温図（深さ 100 m）　(2001 年 5 月)
（海洋総合解析システムによる）

Fig. 18　Monthly mean subsurface (100 m) temperature in the Pacific Ocean for May 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



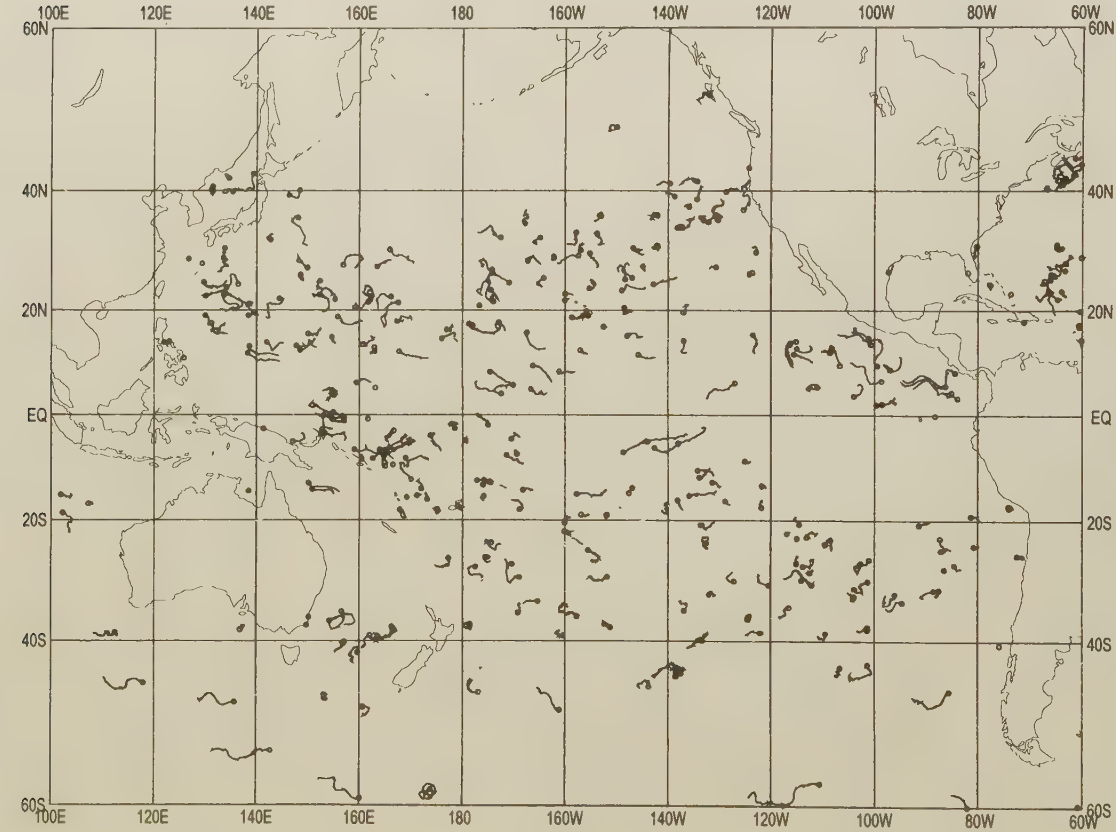
第 19 図　太平洋月平均表層水温図（深さ 200 m）　(2001 年 5 月)
（海洋総合解析システムによる）

Fig. 19　Monthly mean subsurface (200 m) temperature in the Pacific Ocean for May 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第 20 図　太平洋月平均表層水温図（深さ 400 m）　(2001 年 5 月)
（海洋総合解析システムによる）

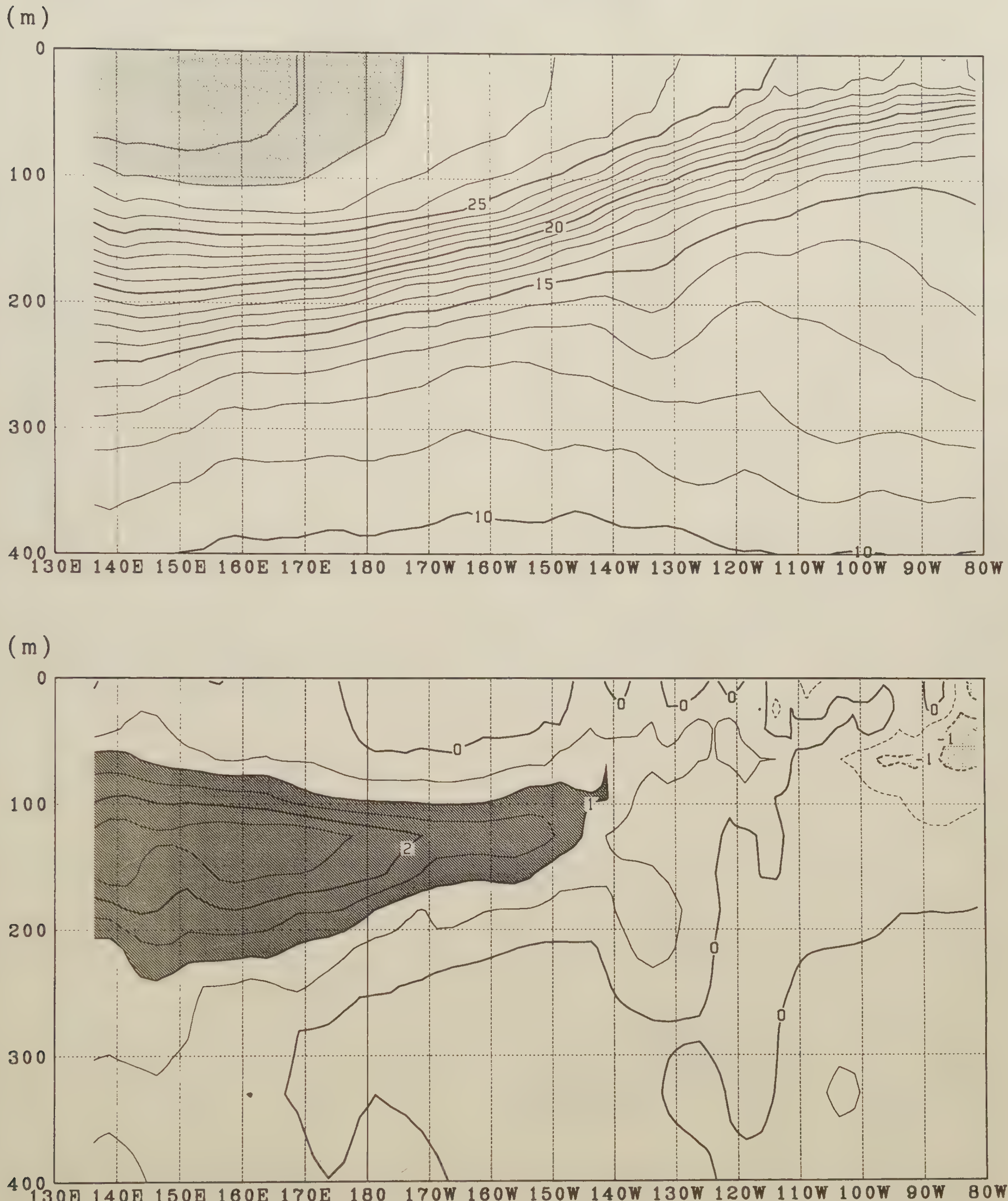
Fig. 20　Monthly mean subsurface (400 m) temperature in the Pacific Ocean for May 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第 21 図　太平洋ブイ流跡図（2001 年 5 月）

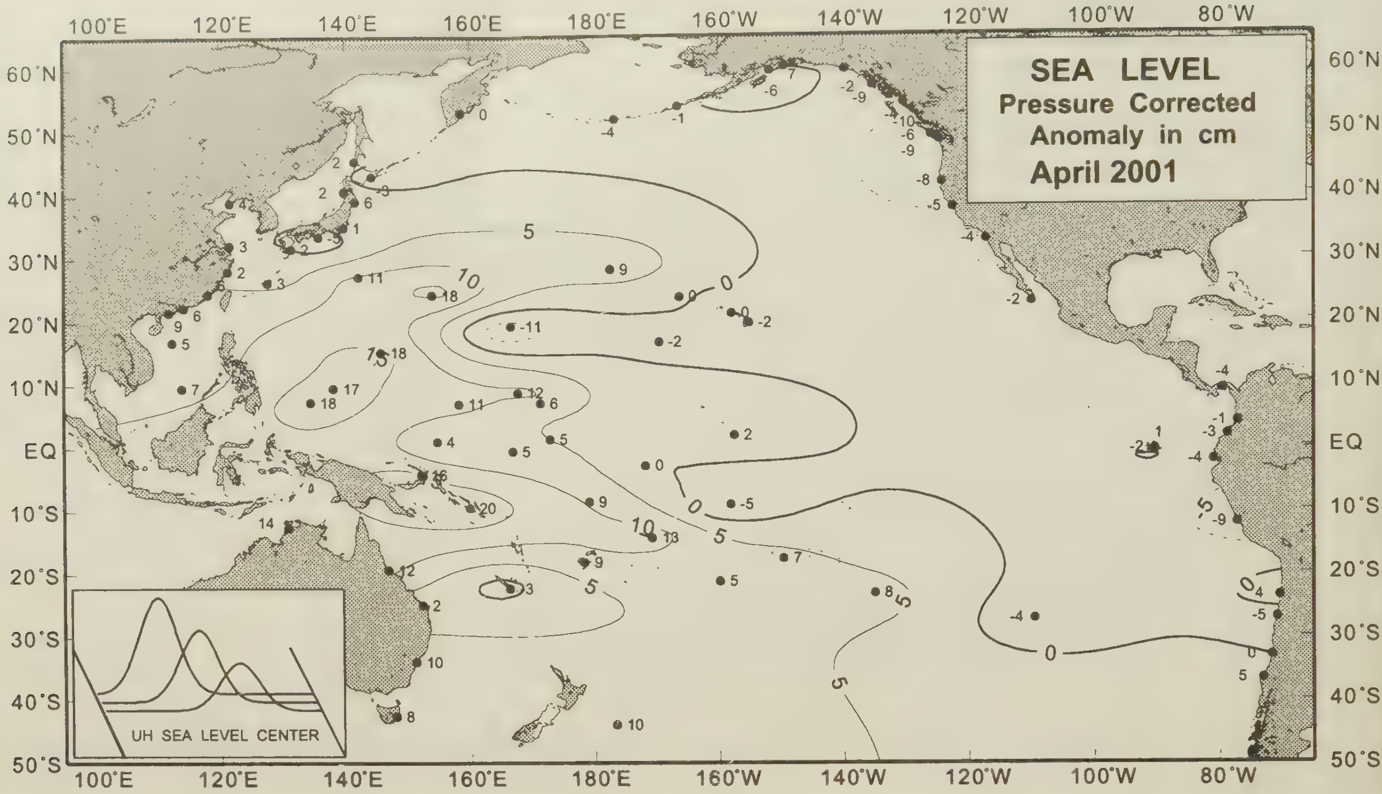
Fig. 21　Trajectories of drifting buoys in the Pacific Ocean during May 2001. Each track is for one buoy. Small circles represent the last positions for the month.

Depth-Longitude Sections of Equatorial Temperature & Anomalies



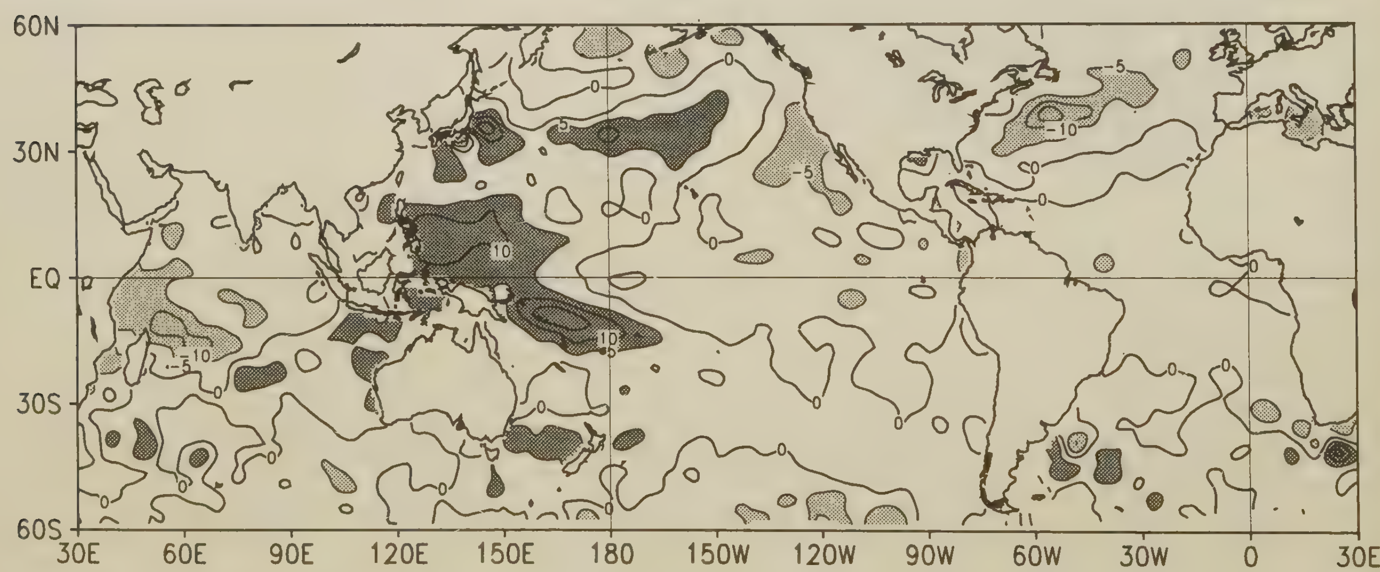
第22図　太平洋赤道に沿う表層水温（上）及び偏差（下）の深度－経度断面図（2001年 5月）

Fig. 22 Depth-longitude sections of temperature (top) and anomalies (bottom) along the equator in the Pacific Ocean for MAY 2001. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (top) and 0.5°C (bottom). Values greater than 28°C in the top panel are shaded. In the bottom panel, values greater than 1°C are shaded and values less than -1°C are spotted. Anomalies are computed from 1987-1999 base period means.



第 23 図　太平洋月平均海面水位偏差図　(2001 年 4 月)

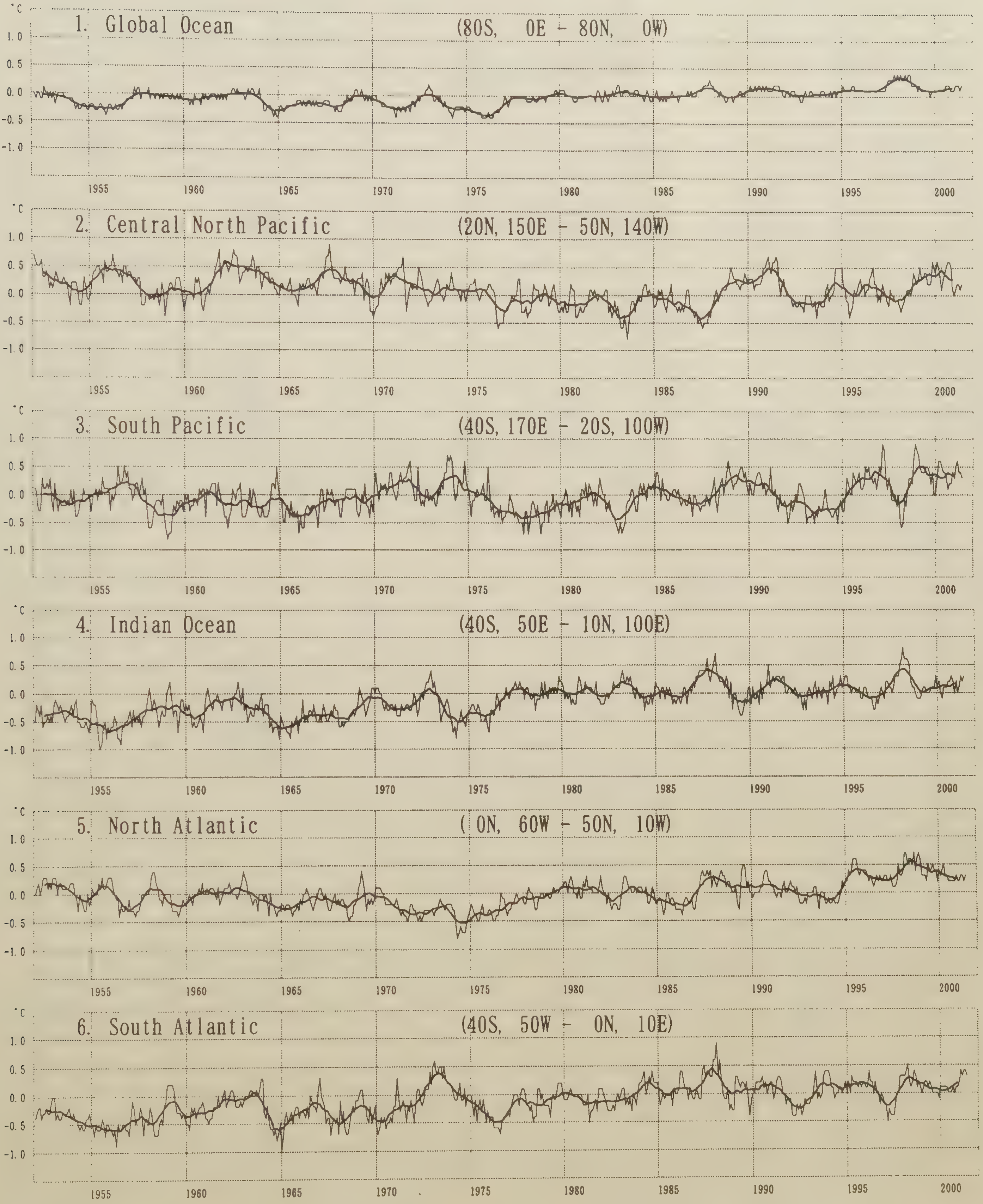
Fig. 23　Monthly sea level anomalies for April 2001 obtained from mean sea level (1975-1995) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Department of Oceanography, University of Hawaii.



第 24 図　全球月平均海面高度偏差図　(2001 年 4 月)

Fig. 24　Monthly sea surface height anomalies in the global ocean derived from the altimeter data of TOPEX/POSEIDON for April 2001. Contour interval is 5 cm. Positive anomalies exceeding +5 cm are shaded and negative anomalies exceeding -5 cm are spotted. Anomalies are computed from 1993-1998 base period means.

Long-term Variation of Monthly Mean SST Anomalies

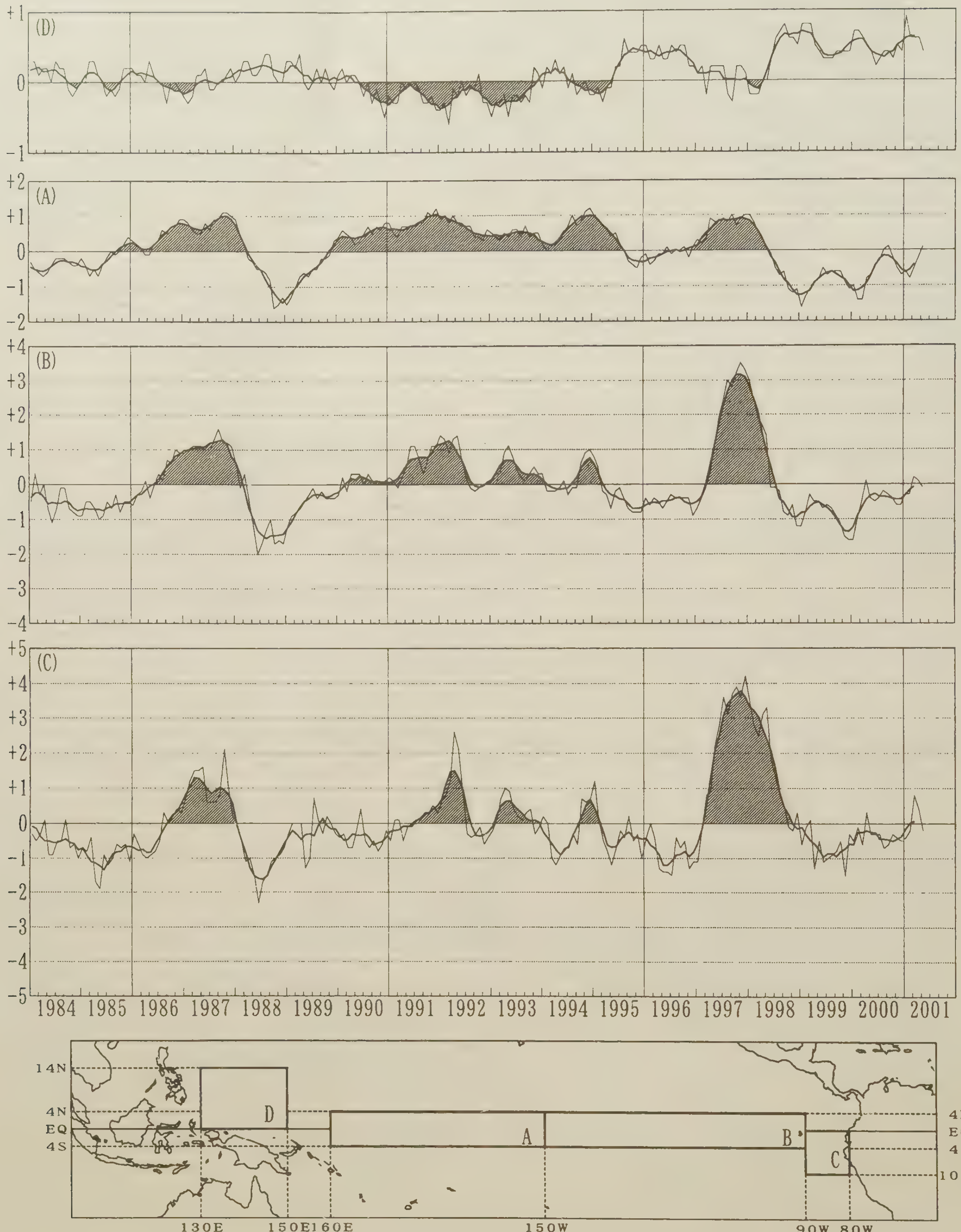


第25図 海域平均海面水温偏差の長期変動

Fig. 25 Long-term variations of monthly mean sea surface temperature anomalies (°C) for the areas shown in the right panel. Anomalies are computed from the JMA climatology (1971-2000). Thin lines show the monthly mean and thick lines their 13-month running means.



Time Series of Tropical Pacific SST Anomalies



第26図　太平洋熱帯域の海面水温偏差時系列図

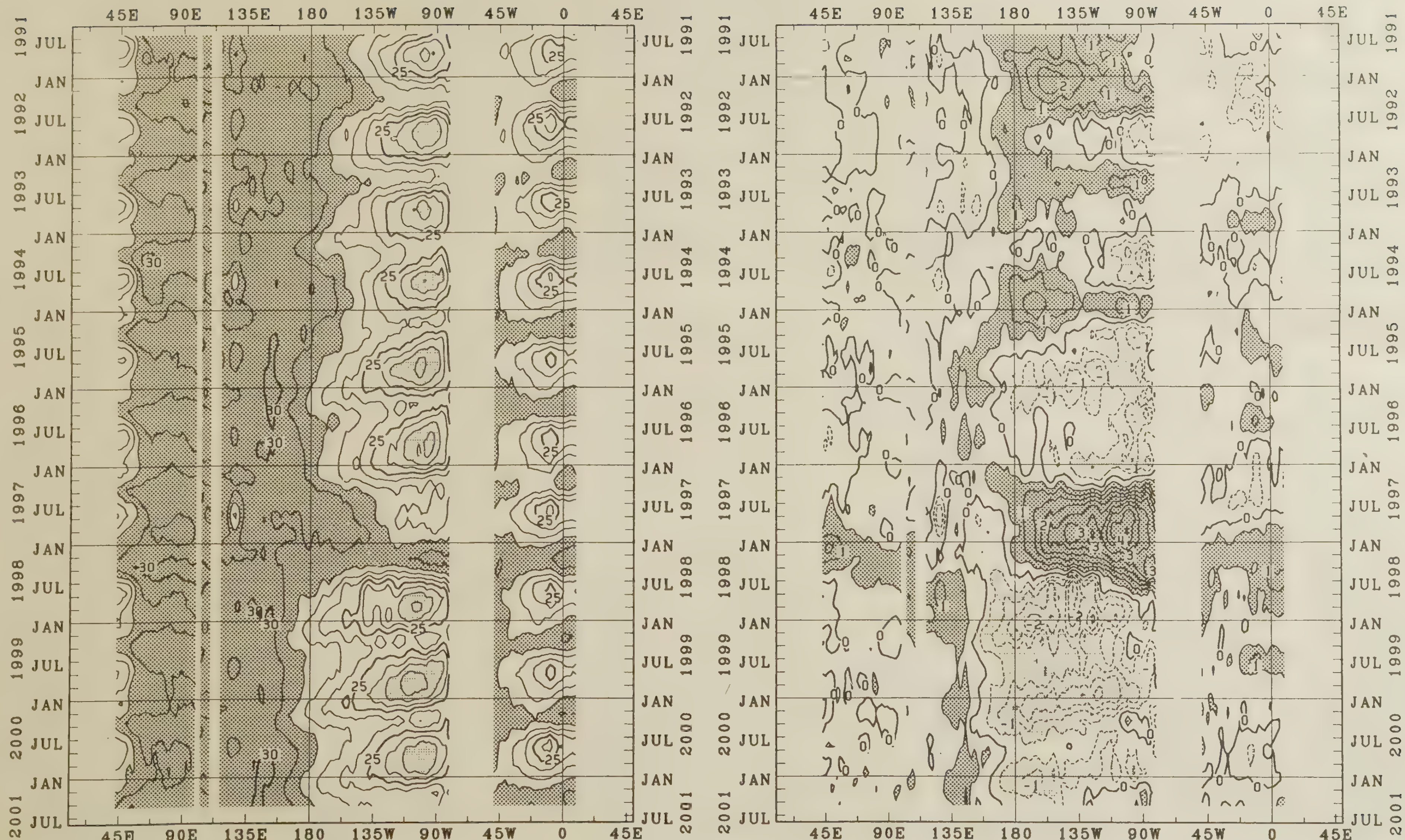
Fig. 26 Time series of monthly mean SST anomalies (°C) in the tropical Pacific Ocean for the areas indicated at the bottom panel. Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1971-2000).

Monitoring Indices in the Tropical Pacific

	SEA SURFACE TEMPERATURE AND ANOMALY (°C)								SOI	SEA LEVEL PRESSURE ANOMALY (hPa)	
MONTH YEAR	REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 99	29.3	0.8	26.4	-1.6	24.2	-1.2	23.9	-0.6	1.5	2.2	-1.2
FEB 99	29.1	0.8	26.7	-1.3	25.5	-0.8	25.9	-0.1	0.8	1.8	-0.2
MAR 99	29.3	0.8	27.0	-1.1	26.8	-0.3	26.4	0.1	0.9	0.9	-1.2
APR 99	29.3	0.5	27.3	-0.9	26.7	-0.5	24.1	-1.3	1.6	2.0	-0.5
MAY 99	29.7	0.4	27.8	-0.8	26.4	-0.5	23.8	-0.5	0.2	1.5	1.2
JUN 99	29.7	0.3	28.0	-0.5	25.5	-0.7	21.8	-1.1	0.3	1.2	0.7
JUL 99	29.6	0.3	27.8	-0.7	24.8	-0.6	20.9	-1.0	0.4	1.3	0.6
AUG 99	29.5	0.3	27.8	-0.6	24.0	-0.7	20.0	-0.9	0.4	1.8	1.2
SEP 99	29.7	0.4	27.8	-0.6	23.8	-0.9	19.7	-0.8	0.0	0.6	0.6
OCT 99	29.8	0.4	27.8	-0.6	23.6	-1.1	20.4	-0.5	1.1	1.7	-0.0
NOV 99	29.7	0.4	27.5	-0.9	23.2	-1.5	20.3	-1.5	1.2	1.6	-0.4
DEC 99	29.4	0.4	27.1	-1.1	23.4	-1.6	22.6	-0.3	1.6	2.6	-0.3
JAN 00	29.2	0.7	27.0	-1.0	23.8	-1.6	24.0	-0.5	0.5	1.7	0.6
FEB 00	29.0	0.7	26.6	-1.4	25.3	-1.0	25.9	-0.1	1.2	3.1	0.2
MAR 00	29.1	0.6	26.7	-1.4	26.6	-0.5	25.7	-0.6	1.1	2.1	-0.2
APR 00	29.3	0.5	27.4	-0.8	27.3	0.1	25.7	0.3	1.4	1.5	-0.6
MAY 00	29.7	0.4	27.9	-0.7	26.5	-0.4	24.0	-0.3	0.3	1.2	0.8
JUN 00	29.6	0.2	28.1	-0.4	25.7	-0.5	22.6	-0.3	-0.4	0.8	1.2
JUL 00	29.6	0.3	28.2	-0.3	25.0	-0.4	21.6	-0.3	-0.3	-0.1	0.5
AUG 00	29.6	0.4	28.4	0.0	24.5	-0.2	20.2	-0.7	0.7	0.7	-0.5
SEP 00	29.7	0.4	28.5	0.1	24.4	-0.3	19.9	-0.6	1.0	2.0	0.2
OCT 00	29.7	0.3	28.2	-0.2	24.3	-0.4	20.6	-0.3	1.0	0.7	-1.0
NOV 00	29.8	0.5	27.9	-0.5	24.1	-0.6	21.4	-0.4	1.9	1.6	-1.9
DEC 00	29.4	0.4	27.5	-0.7	24.4	-0.6	22.4	-0.5	0.9	-0.3	-2.1
JAN 01	29.4	0.9	27.4	-0.6	25.1	-0.3	24.1	-0.4	0.8	3.0	1.1
FEB 01	28.9	0.6	27.2	-0.8	26.0	-0.3	25.8	-0.2	1.0	-0.0	-2.7
MAR 01	29.1	0.6	27.6	-0.5	27.3	0.2	27.1	0.8	0.8	1.8	0.2
APR 01	29.4	0.6	28.0	-0.2	27.3	0.1	25.8	0.4	0.2	0.4	0.2
MAY 01	29.7	0.4	28.7	0.1	26.8	-0.1	24.1	-0.2	-0.8	0.2	1.3

第1表　太平洋熱帯域の大気及び海洋の監視指数

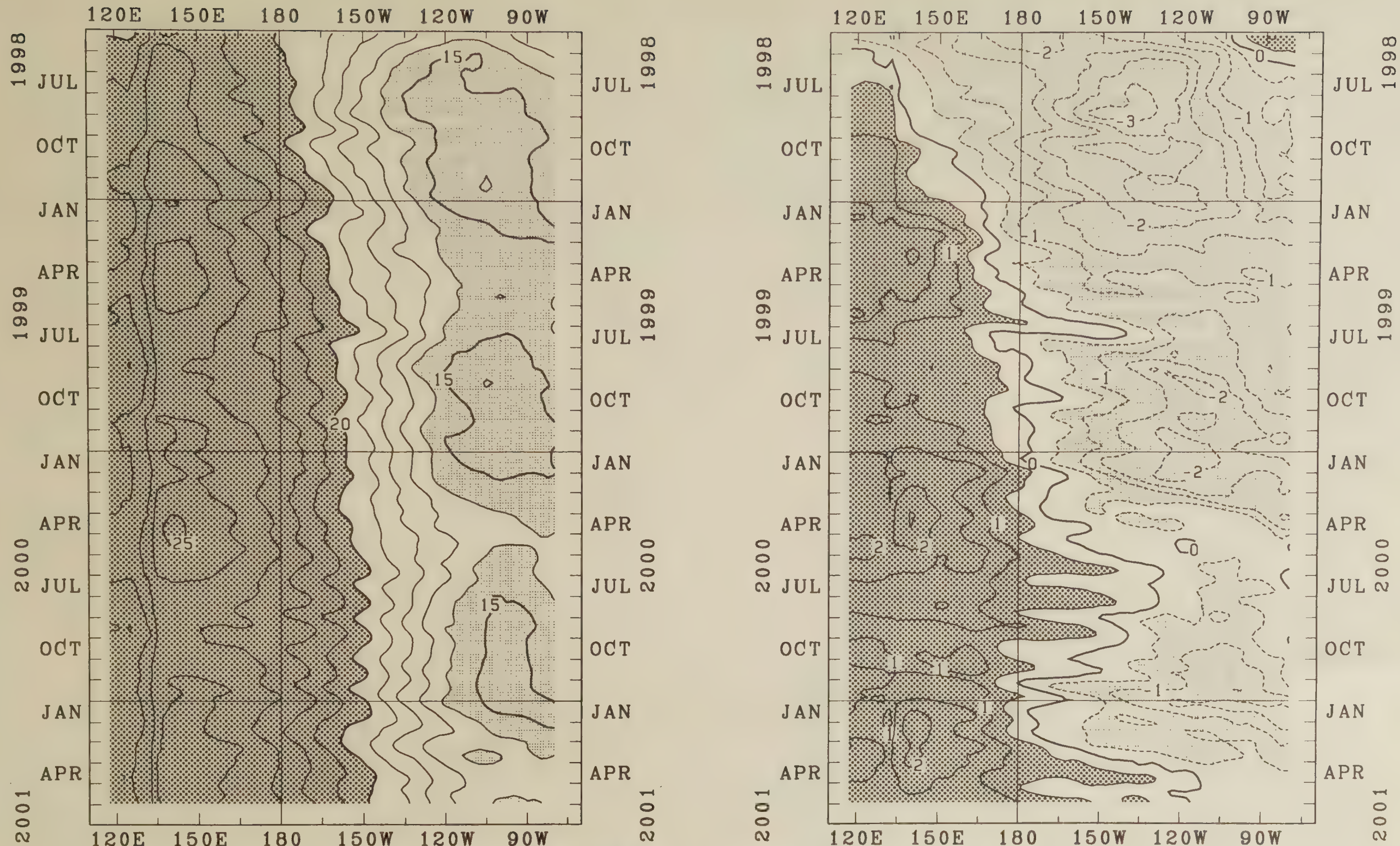
Table 1 Atmospheric and oceanic monitoring indices in the tropical Pacific Ocean



第 27 図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

Fig. 27　Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2 °N-2 °S) in the global ocean. Contour interval is 1 °C (left) and 0.5 °C (right). Values greater than 28 °C are shaded and values less than 23 °C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1971-2000 base period means.

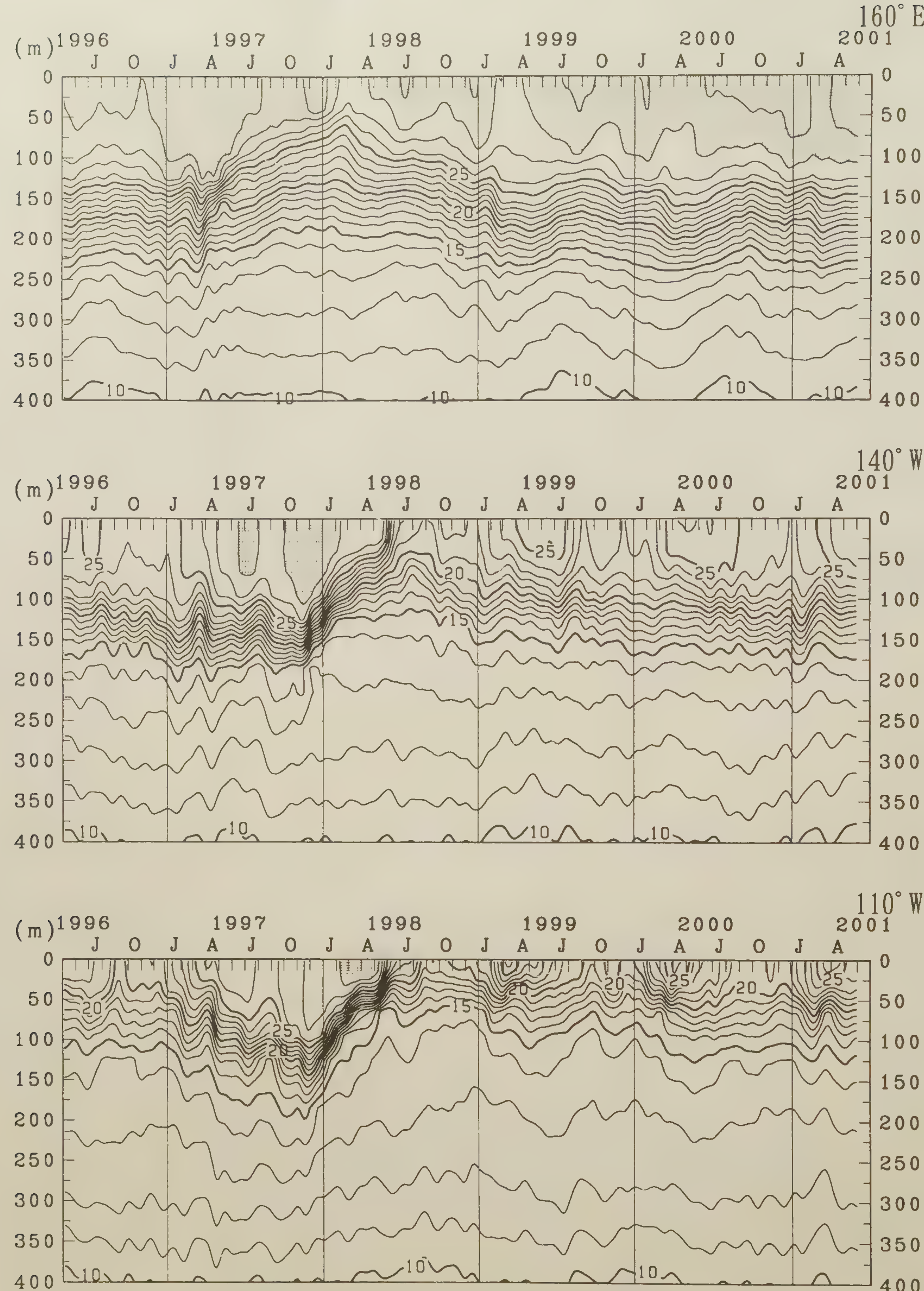
Time-Longitude Sections of Ocean Heat Content & Anomalies (Eq.)



第28図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig. 28　Time-longitude sections of ocean heat content in the upper 260 m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 20°C are shaded and values less than 16°C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-1999 base period means.

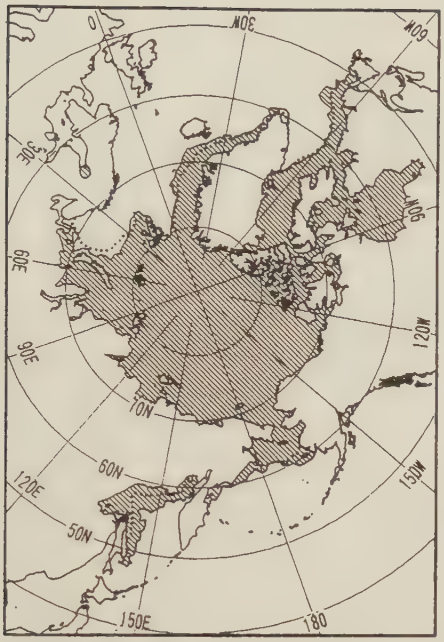
Time-depth Sections of Equatorial Subsurface Temperature



第29図　太平洋赤道域の表層水温の時間－深度断面図

（上：西部、中：中部、下：東部）

Fig. 29 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C. Values greater than 28°C are shaded.

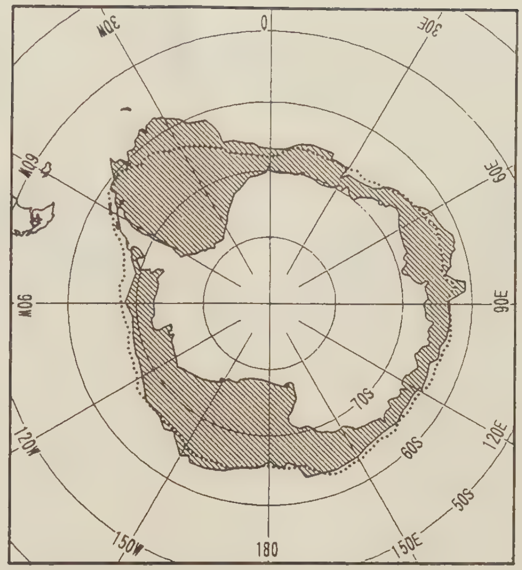


第30-1図　北極域の海氷図（2001年 5月18日）

Fig.30–1 Sea ice chart in the Arctic on 18 May 2001.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1972 through 1990.

The data source is the National Ice Center (USA).

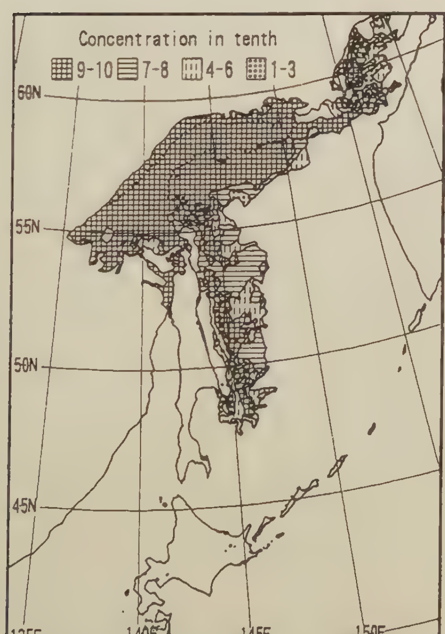


第30-2図　南極域の海氷図（2001年 5月18日）

Fig.30–2 Sea ice chart in the Antarctic on 18 May 2001.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1973 through 1990.

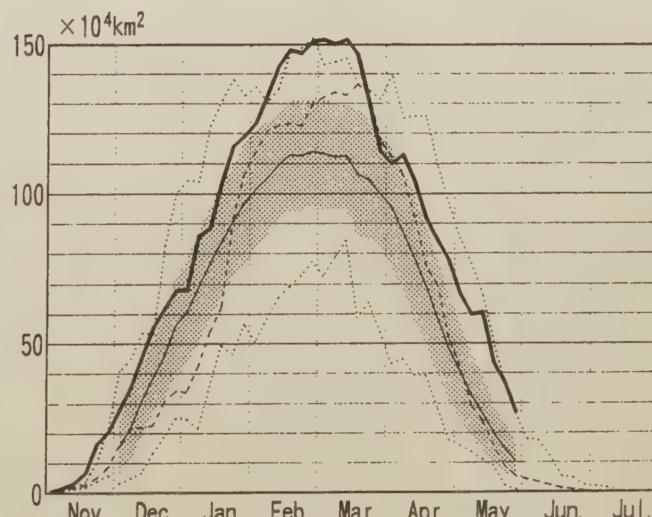
The data source is the National Ice Center (USA).



第30-3図 オホーツク海の海氷図（2001年 5月15日）

Fig.30–3 Sea ice chart in the Sea of Okhotsk on 15 May 2001.

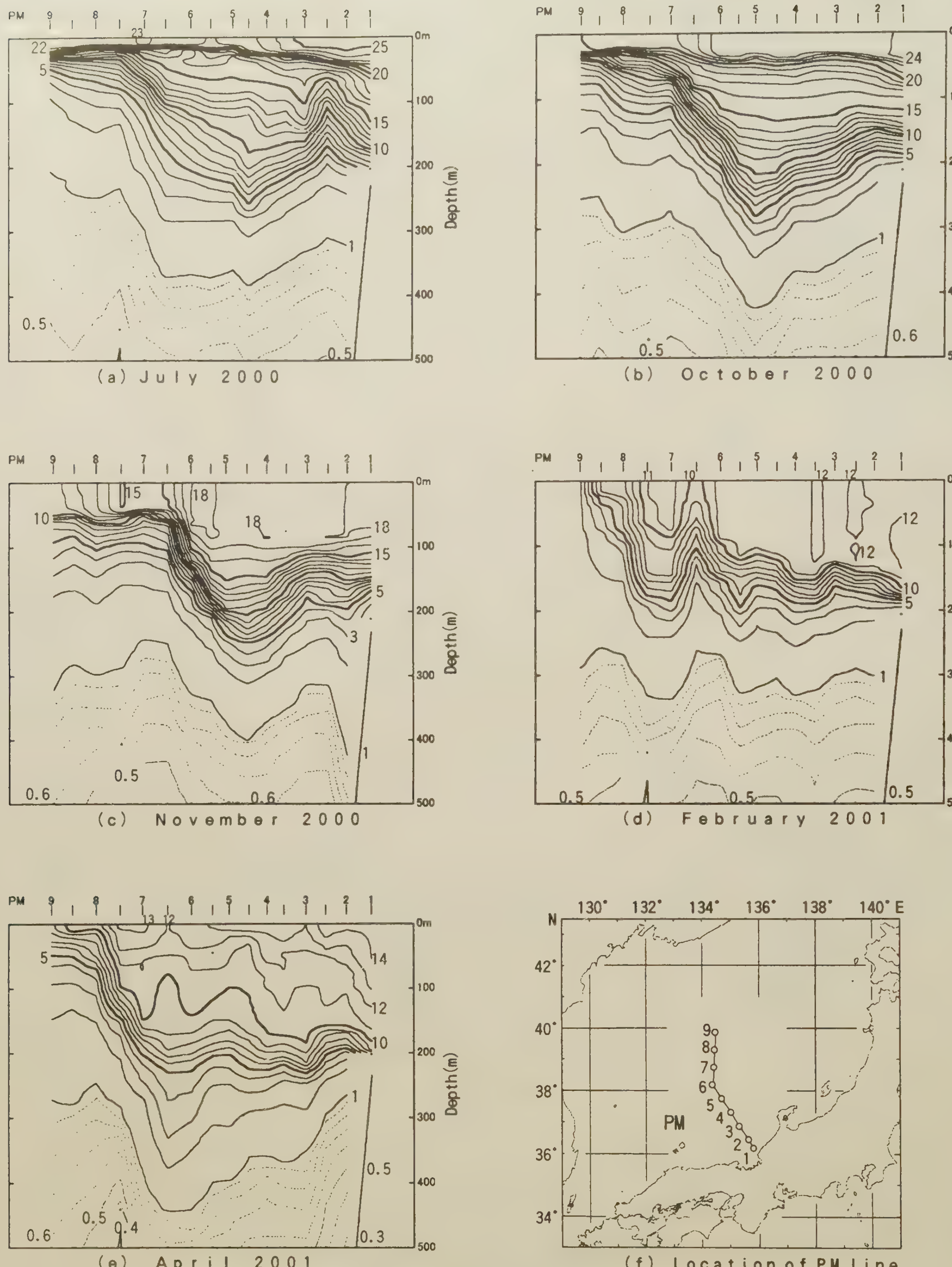
The dotted line denotes the mean ice edge averaged for the period from 1971 through 2000.



第30-4図 オホーツク海の海氷域面積

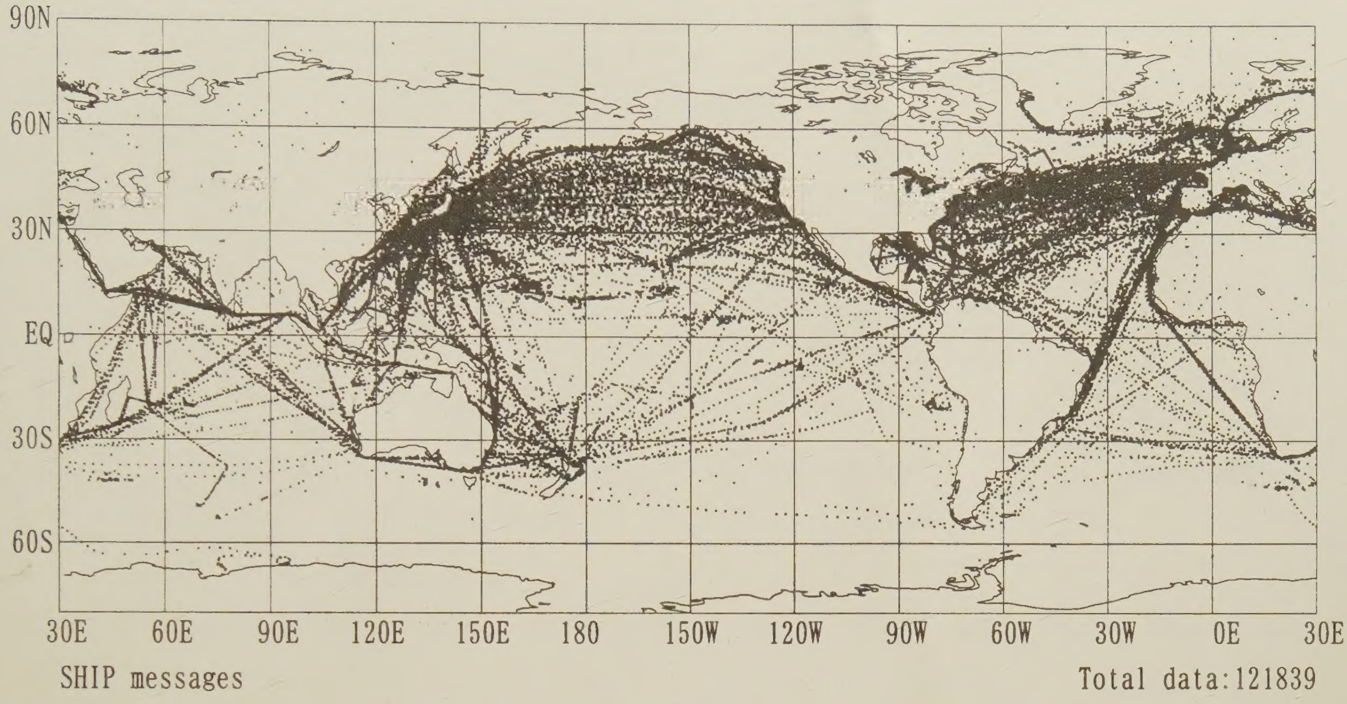
Fig.30–4 Time–series of 5–day sea ice extent in the Sea of Okhotsk.

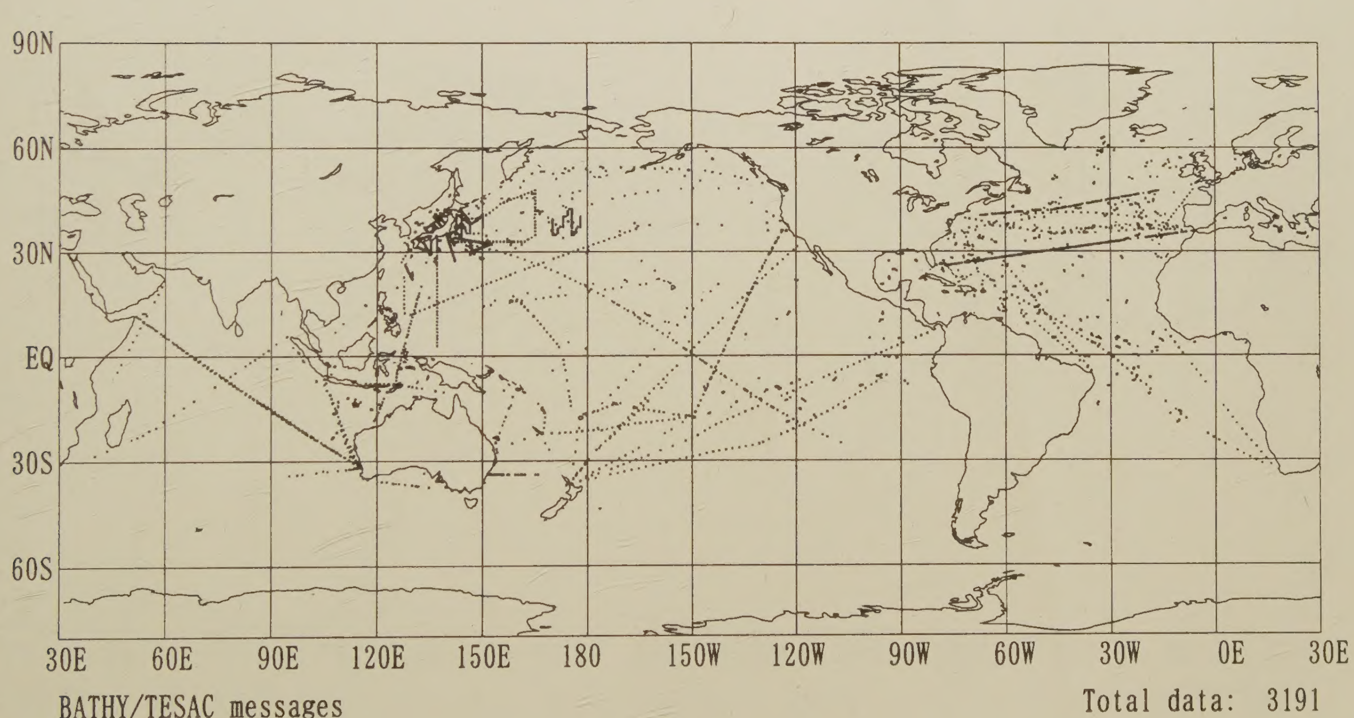
: current season (2000/2001)
: mean extent (1971–2000)
: maximum or minimum extent (1971–2000)
: last season (1999/2000)
: mean $\pm 1\sigma$ (1971–2000)



第31図　舞鶴海洋気象台清風丸によるＰＭ線に沿った水温鉛直断面図(℃). (a) 2000年7月, (b) 2000年10月, (c) 2000年11月, (d) 2001年2月, (e) 2001年4月, (f) ＰＭ線の位置図.

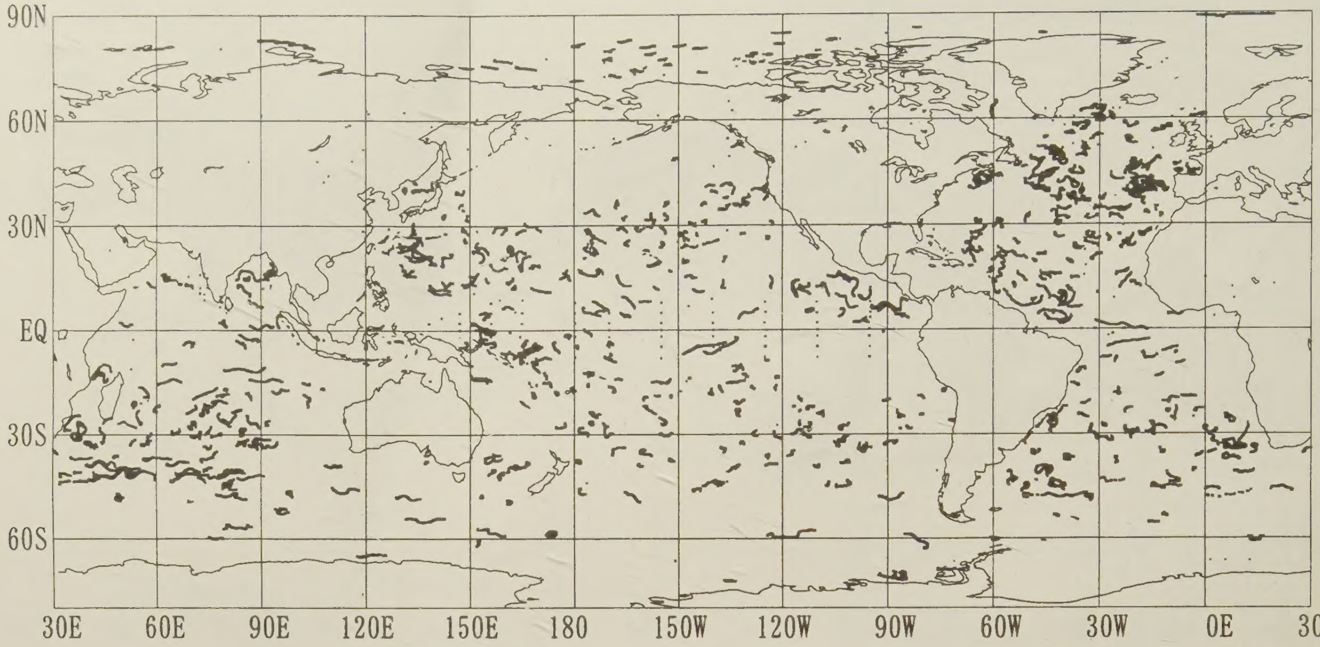
Fig.31 Vertical sections of water temperature(℃) along PM line by R/V Seifu Maru of Maizuru Marine Observatory, JMA. (a) July 2000, (b) October 2000, (c) November 2000, (d) February 2001, (e) April 2001, (f) Location of PM line.

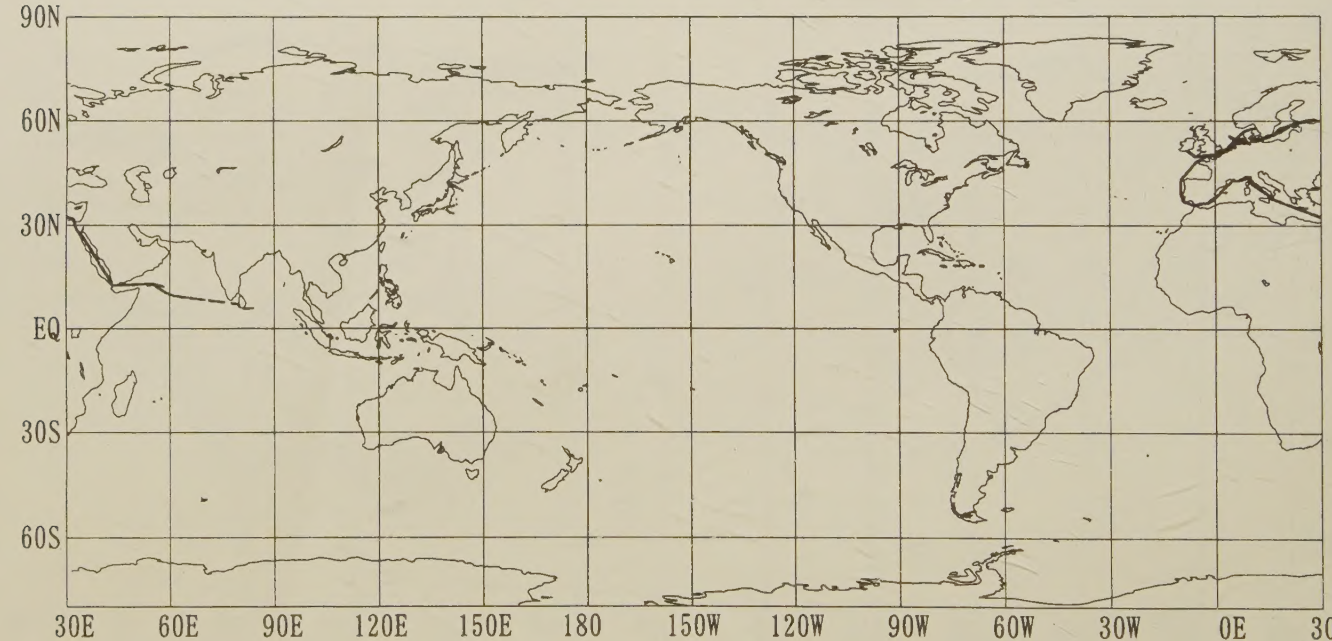




第32-1図　測点分布図(2001年 5月)

Fig. 32-1 Geographical distribution of SHIP messages (SST data, top) and BATHY/TESAC messages (subsurface temperature data, bottom) for MAY 2001.





第32-2図　測点分布図(2001年 5月)

Fig. 32-2 Geographical distribution of BUOY messages (buoy drift and SST data, top) and TRACKOB messages (ship drift and SST data, bottom) for MAY 2001.

気象庁海洋月報

Monthly Ocean Report

May 2001 (No. 101)

本月報掲載の 2001 年 5 月のプロダクトには、気象庁が観測したデータ及び GTS（全球気象通信網）を通じて入手した国際気象通報式による通報のほか、下記の機関等から提供いただいたデータを使用しています。御礼申し上げます。

防衛庁、水産庁、海上保安庁

水産総合研究センター

海洋科学技術センター、(社) 漁業情報サービスセンター

東北大学

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（順不同）

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